

# hard core

THE JOURNAL  
OF THE  
BRITISH APPLE  
SYSTEMS  
USER GROUP



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# hardcore

THE JOURNAL OF

THE BRITISH APPLE SYSTEMS USER GROUP

P.O. BOX 174 WATFORD WD2 6NF

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Richard Beck	Courses
Richard Boyd	Meetings, Local Groups
Keith Chamberlain	Membership
Tony Game	Press Officer
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Jim Panks	Software Library
Quentin Reidford	Bulletin Board
John Rogers	Special Release Software
Peter Trinder	Updates
Ewen Wannop	Prestel

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Founder members of the Association of Computer Clubs.

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## Editorial

I am pleased to be able to put out a bumper issue this time. Unfortunately, the article on Expert Systems has had to be delayed until the next issue, but I hope there is enough here to keep you interested.

Many thanks to those who contributed to our Printer Card Survey. I hope this will help those trying to decide the card for them.

There are several areas where articles would be especially welcome. As you can see from the letters pages, linking to the BBC machine is one of these. I would also like to see more on utilities. Besides reviews, it would be useful if someone could write on why we want utilities, the uses to which they are put or even uses to which they could be put if only someone would program them! Again from our letters you can see a request for games reviews to help people avoid buying expensive games which are not particularly good. I am not looking for long screeds, only a short paragraph on what sort of game it is and whether it is value for money. Basically, for utilities and games it is the user viewpoint I am looking for. This is after all a User Group. Let us exchange information. You can never guess what you have to tell that someone else wants to hear, or what someone else may be able to tell you.

Paul Hartley from Merseyside has asked why we have no FORTH SIG. Good question.

Finally, thank you for all the offers to review hardware and interfacing books. All the ones I had have now been distributed but I will be keeping all your names on file for the next batch that come in. If you offered help but no longer wish to or have the time to review just let me know so that I can cross your name off the list.

## Lonely Apples

Mr. Jose Richter would like to contact Apple users in the Bilbao area of Spain. His address is:

Mr. Jose Richter  
Calle de la Libertad, 10  
48001 Bilbao

## Chairman's Corner

As you will see, this is another Bumper issue of Hardcore, the second in the last 9 months. Thanks to all those who have contributed. It would be nice to have a large issue every time. One of the limits on the magazine is the availability of advertising, so please patronise our advertisers, and when you buy from them, please make sure that you mention Hardcore.

Since the last issue we have held the AGM. Despite some problems with noisy phone lines and being let down by a number of people who had promised to bring equipment, there was a lively atmosphere, and a very good turn out. Thanks to all those who came, especially those from as far as Bristol and Glasgow. We have a pair of glasses that someone left, contact Fran if you are the owner.

There was an amazing response to our plea for help on the committee, and I welcome a number of new (and used!) faces. We say goodbye to David Bolton, one of the founder members of BASUG, who did not stand again. The new committee has already made a good start in continuing the process of improving the services to members. We expect great things from the new Software group. We have had a great response to our request for volunteers to help get the software library up to date.

We are starting a database of volunteers so if you would like to volunteer to help in some way, let us know your level of expertise and if you have any specialist knowledge. Beginners are also welcome.

In September (12th-16th) we will be exhibiting at the PCW Show. If you can help man our stand please get in touch. (Having an exhibitors pass saves hours in the queue). It's great fun and only enormously exhausting. If you can help for a couple of hours or more, we would be very grateful.

We now have our first Macintosh users in BASUG, and our first article on Macintosh in Hardcore. We will be relying on those who have Macs to let us know the pros and cons of the machine and its quirks, it's bound to have some. We have already heard, for example, that the newly released Microsoft Basic does not support a number of Mac instructions, including the one that ejects a disk. This means that with a Basic program you have to keep your program and data on one disk. As new idiosyncracies come to light, please let us know.

# AGM

Minutes of the Annual General Meeting of BASUG Ltd. held at the Central Institute, Longford St., London on Sat. 16th June 1984.

The meeting was opened by Bob Raikes, chairman of BASUG Ltd., at 3.03 pm. Approximately sixty members were in attendance including 8 members of the outgoing committee.

1. No apologies for absence were received.

2. Frank Everett proposed and Martin Rogers seconded that the minutes of the previous Annual General Meeting held on Saturday 2nd July 1983 be taken as read. This was carried unanimously.

3. There were no matters arising.

## 4. Chairman's Report.

The chairman began by pointing out that members now had a new freedom of access to the committee and this had led to improved relationships and the discovery of new sources of expertise among the membership. The creation of the technical hotline organised by Martin Rogers had been a great success judging by the number of members making use of it day by day. The chairman thanked all those who had helped with the hotline.

Another new enterprise begun during the year was the bulletin board run by Quentin Reidford. This reflected the growing interest in communications. Thanks were expressed to Quentin for the hard work involved in getting the bulletin board started. It was hoped that other bulletin boards would be started so that more members could reach the board by a local telephone call.

BASUG Special Release software, available to members, had created a new avenue through which members could market their own software. The quality of the programs was excellent. Ewen Wannop's Prestel software was mentioned.

Hardcore had flourished during the year. All issues had reached the printer on time. This represented a great effort on the part of those concerned.

BASUG now had 50% more members than at the last AGM. The steady growth of membership

was due to better administration by Fran Teo and a great effort on renewals by Keith Chamberlain.

The representation of BASUG on Prestel and courses for members were two areas where improvements could be made. The South West London local group had ended but it was hoped to start a new group in Central London. The chairman welcomed a new group, Mid-Apple.

During this year it had become evident that the software library needed updating and that this was too much work for one person. Twenty seven people had now volunteered their assistance to Jim Panks and the software library catalogue was due for renewal. BASUG now had a Macintosh introductory disk donated by Apple UK.

Help was requested for the coming PCW show. Thanks were expressed to the exhibitions organiser for his help.

John Wellsman had left the committee during the year. Tony Williams had also left but was helping at Earls Court so that others could attend the AGM. David Bolton was not standing for re-election. The chairman described the part David had played as a founder member of BASUG and the hard work he had put in during the early days, particularly as editor of Hardcore. The chairman expressed his thanks to the outgoing committee.

## 5. Secretary's Report.

The secretary reported that BASUG had maintained a successful presence at several computer shows including PCW, The Apple Village at Ashford, the North West Computer Show, the London Computer Fair, the Midland Computer Fair, Apple '84 and the Earls Court show now on. The secretary thanked those helping with shows.

Several successful courses had been held during the year including beginners' and advanced Visicalc courses given by Fran Teo, a Wordstar course by Bob Mould and a course on dBase II by Martin Rogers.

National meetings had been held in South London, Liverpool (communications), Maldstone (databases), Cambridge, Bristol, Milton Keynes and Hatfield.

At the last AGM the secretary had reported

an improvement in the attitude of Apple UK towards BASUG. This improvement had continued throughout the year, thanks mainly to Steve Holmes of Apple UK. The success of the Hatfield meeting was due to Apple generously supplying two Lisas, three Macintoshes and a //e and II+ fitted with the Mouse II. An Apple II+ had been given to BASUG by Apple UK for use on the bulletin board. They had provided publicity material for shows and had cooperated in publicising BASUG to new owners of Apple products. Most important of all, Apple UK had become more accessible to BASUG which could only be a good thing for the membership in general.

#### 6. Treasurer's Report.

The treasurer drew the attention of those present to the accounts published in update no. 19, to the deficit of almost £8000 and the accumulated deficit of £4000.

As a result of a query from the floor, the chairman explained that consultants fees were payments for work done by various people prior to June 1983. The auditors had done the best they could with the figures available. Seth Proctor asked whether a full year's figures would be available for the next AGM. This depended on the date of the AGM.

Frank Everett asked the treasurer if he could say how BASUG's finances stood at the present. The treasurer stated that, in his opinion, at the end of June 1984 BASUG would be in a loss position, the amount of which could only be estimated but which again may be around £4000. Obviously we could not continue in this way.

In response to a query the treasurer explained that the money that BASUG owed was money owed to members who had paid their subscriptions and not yet received all the services due to them, e.g. Hardcore.

Alick Elithorn asked if the treasurer could say where the loss was occurring and how it was subdivided. The treasurer explained that BASUG did not have that kind of financial control during the period before June 1983. Alick Elithorn suggested that the level of renewals would act as a measure of dissatisfaction and the chairman stated that renewals were running at 70% in recent months. The treasurer pointed out that those members not using the hotline, bulletin board and administration probably did not

get back all their subscription in services, but those using the facilities and frequently ringing for advice obviously got back more than their subscription was worth.

Ray Harris requested that in future auditors reports a note be included on consultants fees. The treasurer replied that although this was not a statutory requirement it could be arranged if required. It was agreed that in future, consultants fees would be itemised in a note to the accounts.

John Rogers pointed out that BASUG was trying to provide a service, not to make a profit. The aim was to break even. A discussion was held between the treasurer and Alick Elithorn on the pricing of various items.

#### 7. Adoption of Accounts.

Peter Trinder proposed the adoption of the accounts. John Dolan seconded. This was carried unanimously.

\* The outgoing committee resigned at this point.

#### 8. Election of officers.

Bob Raikes announced that one nomination had been received for each of the positions of Chairman, Secretary and Treasurer respectively. Eleven nominations had been received for the committee. Norah Arnold was asked to read out the nominations. They were as follows:-

Chairman	Bob Raikes.
Secretary	Norah Arnold.
Treasurer	Roger Gear-Evans.
Committee	John Rogers, Keith Chamberlain, Jim Panks, Quentin Reidford, Tony Game, Ewen Wannop, Richard Boyd, Richard Beck, Peter Trinder, Roger Harris, Graham Attwood.

Fran Teo proposed the acceptance of the nominations 'en bloc'. This was seconded by Graham Wood and passed unanimously.

#### 9. Appointment of Auditors.

Fran Teo stated that a member's wife had said that she was willing to be the auditor. The treasurer and the administrator both wished to keep the same auditors for the sake of continuity. Graham Wood enquired as to whether the auditor's fees were reasonable and the treasurer replied that future fees



should be less since the information would be presented to the auditors in better order. Mike Jones proposed that BASUG kept the same auditors for a further year. This was seconded by Martin Rogers and passed unanimously.

#### 10. Subscription Proposal.

The chairman reminded those present of the state of the accounts and pointed out that many large firms who were members could afford to pay more. Firms sending people on Visicalc courses saved about £75 a day.

The chairman read a letter from Gerry Corti who wished to amend the proposal as published in update no. 18 as follows:- "A business member shall be defined as a person or firm which sells the output (in whatever form) of their computer, or which charges for the time employed at the computer, or for preparing computer inputs and outputs". No seconder had been found and Mr. Corti now wished to withdraw the amendment.

The chairman explained that it was not intended to distinguish between personal and business/educational use in the way Mr. Corti had done. The intention was to distinguish by the method of payment i.e. if a business cheque was submitted and/or a VAT invoice required, then the business category would be assumed; if a personal cheque was submitted then the personal subscription would be charged. The treasurer pointed out that in the case of small businesses, it would be up to the consciences of those concerned. If the subscription was claimed as an expense on Inland Revenue returns, then it should be paid as for a business member.

John Rogers described himself as a self-employed computer user and a member of the Sirius user group. He stated that the Sirius group offer fewer services to members but charge a much higher subscription and higher course fees.

Some discussion then took place as to the nature of educational use. David Moore proposed an amendment to the original proposal:- "that business/educational should be changed to business/institutional". This was seconded by Seth Proctor. The amendment was passed.

Alick Elithorn proposed a change in the business/institutional subscription but no

change in the personal. No seconder was found.

David Wood proposed that the amended proposal be accepted: i.e. "that the subscription should be changed from the 1st September 1984. There will be two classes of membership - personal and business/institutional. The revised amounts being:-

	Renewal	New Member
Personal	£ 15	£ 20
Business/Institutional	£ 25	£ 30".

The seconder was John Dolan. The proposal was carried.

The treasurer stated that in his opinion it was difficult to assess the right amount to charge businesses such as Abbey National and Ford's and he proposed that for each additional membership required, businesses be charged an appropriate rate at the discretion of the committee. This was seconded by Graham Wood. The proposal was carried.

#### 11. Any other business.

##### a. Charitable status and covenants.

W. Marks raised the question of whether BASUG members could raise more money by covenanting their subscriptions. The chairman replied that BASUG did not qualify for charitable status.

##### b. Marketing.

Richard Boyd raised the question of the marketing of BASUG disks etc. and offered help in this area. The chairman stated that selling to non-members would lose BASUG tax advantages enjoyed at present. Martin Rogers, Peter Trinder and Mike Salem offered suggestions to improve revenue.

##### c. Editor of Hardcore.

Ray Harris proposed a vote of thanks to the editor of Hardcore.

##### d. The outgoing committee.

Peter Trinder proposed a vote of thanks to the outgoing committee, seconded by John Dolan.

The meeting closed at 4.35 pm.

# Boole Rules - OK?

by Roger Mather

Our four friendly binary operators, plus, minus, multiply and divide are so called because they operate on two numbers (binary means two) to give one number. The problems arise when they are combined together, e.g. calculate  $4+8 \times 3$ ... is the answer 36 or 28? It depends on whether you do the + or the  $\times$  first.

Those of you who are good at sums will have got the answer right. It's 28 because the  $\times$  is more powerful than the +. The sum really means 4 plus 8 lots of 3. Those of us who aren't good at sums have problems, particularly if it's something like  $14-8+3$  - is the answer 3 or 9? Brackets help because they mean "do me first" so  $(14-8)+3$  is easy. Learning and using the rules of number combination cause untold misery to maths students.

Our friendly Apple computer uses the same rules.

```
PRINT 4+8*3    gives 24
PRINT 4+(8*3)  gives 24
```

(the rules are the same; the multiply and divide symbols are different).

```
Why not try
PRINT 4*8/2
PRINT 4/8*2
PRINT 4*(8/2)
```

and so on, shifting the brackets round? The answer may not always be what you expect but the basic rule is clear; brackets are always worked out first and avoid a lot of confusion.

## WHAT ABOUT MR.BOOLE?

Mr.Boole was a gentleman with a very pronounced idea of right and wrong; things were true or false, no other choice, no maybes, no ifs or buts. Imagine a truth tester, a black box into which you can shout a statement like "BOB LIKES BLUE SPAGHETTI". The machine considers this and then holds up either T for true or F for false - and nothing else. Simple, too simple for Mr.Boole, his truth tester gives 1 instead of T and 0 instead of F.

The Apple acts like a Boolean truth tester. It really prefers to combine numbers together

mathematically but if it can't do that, it's second preference is to pontificate on truth and falsehood. Of course it won't tell you its conclusion unless you ask it to.

```
PRINT 2=2 means "test the statement 2=2 and
tell us whether it is true or false", so the
answer comes back "1".
PRINT 2=3 will give 0.
PRINT "BASUG"="BASUG" will give 1.
We're not using the Apple in program mode
but directly, of course.
```

```
Question:-
PRINT A=B gives 1.
PRINT "A"="B" gives 0. WHY?
```

Truth testing can be used in programs. Suppose the value of A has to depend on the value of B; A is 4,15,34 when B is 1,2,3 respectively. You can do this with

```
100 IF B = 1 THEN A = 4
110 IF B = 2 THEN A = 15
120 IF B = 3 THEN A = 34
OR
100 A = 4*(B=1) + 15*(B=2) + 34*(B=3)
```

to understand the single line effect, remember that brackets mean 'do me first' and that if the Apple can't work something out it treats it as a truth statement to be tested. If B=1 then only the first bracket is true, and this takes the value 1, the other two brackets become 0, we have

```
100 A = 4*1 + 15*0 + 34*0, which gives A=4
```

The IF...THEN statements themselves in the first program are also truth statements to be tested, if the statement is true, it takes the value 1 and the line proceeds, if false the value 0 stops the line. A truth value of 1 allows the line to continue, a value of 0 doesn't. Understanding this point explains why a line like

```
240 IF H THEN CS = "TRUE"
```

works. If H already has a value 0 the line doesn't proceed, if it has a value of 1 then the line does proceed. Try this.

```
10 INPUT H
20 IF H THEN PRINT "TRUE FOR H = ";H:
   GOTO 40
30 PRINT "FALSE FOR H = ";H
40 GOTO 10
```



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By putting various values for H you can test which values pass the truth test and which fail. (Use reset to jump out of the program). The answer may not be quite what you expect.

Truth tests can be combined e.g. "If it's raining, or it's a Thursday, or I had prunes for breakfast, I will not go out today". They are combined using the two words "AND" & "OR". AND is simple - both statements must be true to continue e.g. if the sun shines and you're ready before 10 o'clock, we will go out, OR is used in two ways. Either ONE and only one of the statements must be true (called exclusive OR); or one or both can be true (inclusive OR). In truth tests the inclusive OR is the one used by Apple basic.

The rules can be summarized:-

```
AND  true AND true = true
      true AND false = false
      false AND true = false
      false AND false = false
```

```
INCOR  true OR true = true
        true OR false = true
        false OR true = true
        false OR false = false
```

remembering that true is 1 and false is 0

```
1 AND 1 = 1      1 OR 1 = 1
1 AND 0 = 0      1 OR 0 = 1
0 AND 1 = 0      0 OR 1 = 1
0 AND 0 = 0      0 OR 0 = 0
```

These are some of THE RULES OF BOOLEAN LOGIC! Expressed in the numerical way they are helpful in the machine code manipulation of binary numbers.

There are other operators called NAND & NOR, which are the opposites of AND & OR but they are not used in Applesoft so we can (thankfully) ignore them.

Combining AND & OR together is rather like using MULTIPLY and PLUS in sums, you have to remember which is more powerful, or use brackets (safer). In fact AND is more powerful than OR e.g. in a program we could have

```
20 IF A = 4 AND B = 5 OR C = 6 THEN PRINT
"BOOLE WINS"
```

If A = 4 and B = 5 (both these must happen together) then BOOLE WINS is printed, whatever the value of C. If C = 6 then BOOLE

WINS is printed, whatever the values of A and B.

Convince yourself with this program.

```
10 INPUT A,B,C
20 IF A = 4 AND B = 5 OR C = 6 THEN PRINT
"BOOLE WINS"
30 GOTO 10
```

It's clearer with brackets.

```
20 IF (A = 4 AND B = 5) OR C = 6 THEN PRINT
"BOOLE WINS"
```

is the same as before because AND is done before OR anyway, but

```
20 IF A = 4 AND (B = 5 OR C = 6) THEN PRINT
"BOOLE WINS"
```

is very different - go on try it and see, no-one's looking.

One other word - NOT, reverses a test. Putting

```
20 IF A = 4 AND NOT B = 5 OR C = 6 THEN
PRINT "BOOLE WINS"
```

means that instead of B having to be 5, now the value 5 is forbidden, B can be anything that's not 5.

If you worked through the program with H above, you will have found that the Apple treats any non-zero number as 1 in a truth test, so we can use AND & OR in mathematical computations

```
50 PRINT 4 + 5 AND 2
```

gives 1. The Apple works out the + first giving 9, then 9 AND 2 is interpreted as TRUE AND TRUE giving TRUE or a value of 1. The order for working out expressions is given in the Applesoft manual page 36.

The really enterprising programmer will litter his lines with vast quantities of ANDs & ORs to make his scheming incomprehensible to all but the most patient Boole buffs. Sorting out a line like

```
235 IF SC% = 12 AND A$(13) = "CHRISTMAS"
OR HY% = 0.8 OR ((PS = "XXX" AND
Z$ = "42.3") OR TY% = 4) THEN GOTO 235
```

is really a matter of patient endeavour and black coffee, once you understand the basic RULES OF BOOLE.

# Competition

by Richard Teed

Here is the full story for the BASUG competition of why

```
100 GET A$  
110 PRINT VAL (A$)
```

gives a value of 1111111111111111 (or would if it had sufficient precision, it therefore gives 1.1111111E16 instead) when a one is pressed.

As (I am glad to say) your winner points out the error is due to string storage starting at location \$BFFF. Moving it down a single byte is sufficient to correct the problem. One puzzle is however: why does it work with "INPUT"? If you examine memory after execution with "GET" and then with "INPUT" you will find it identical with the strings in the same place and their descriptors the same.

The reason for the different answers hinges on locations \$C000 to \$C00F. As you probably know \$C000 is the keyboard input port, any key pressed appears here. Also it seems that memory locations \$C001 to \$C00F also contain the ASCII of the last key pressed.

Now "VAL" takes the location at the end of the string plus one (in the competition program this is \$C000) and saves it. It then replaces this location by a terminator (\$00) but in this case it can't because you cannot write to location \$C000 so after the "GET" it will still contain a value of \$31. The floating point input routine clears a buffer starting at location \$99 and length 16 bytes for a floating point number. The first character of the string is read and converted to a floating point number. Next the second character of the string is read. This should be a terminator but is a \$31 in this case and so combining it with the number already in the floating point accumulator we have an answer of 11. The next time round we have a result of 111. The floating point input routine continues this way until either a terminator is read or sixteen characters have been read in and so this accounts for the result of 1111111111111111.

With "INPUT", in order to terminate the input a <RETURN> must be pressed and this is a valid terminator to the floating point

input routine, so after reading the \$31 of the string it picks up a \$0D from location \$C000 and stops reading numbers, giving a correct answer.

As an aside you may be interested to know that because the character after the string is replaced by a \$00 while "VAL" and "Floating Point Input" do their bit, pressing Reset at the correct moment will corrupt the string above the one "VAL" is acting on.

Probably the best fix to all this is to use DOS.

## The Rest of the Press

by Tony Game

I have often thought that the word BASUG, considering its great importance, does not appear nearly as often as it should in the lesser computing press. I should like to feel that something can be done to put this right. With the advent of the //c large numbers of entirely new owners are likely to appear, whose only interest initially is in running things like APPLEWORKS. I think it essential that these people should see in whatever magazine they happen to pick up, references to our existence, so that they will know that there is more in Apple ownership than the running of a few commercial packages. I obviously can only see a few of the computing mags, but our combined membership must between them see pretty well all that is published. Will any of you who believe that something ought to be done in this respect either do it yourselves, and let me know that you have done so, or just tell me what it is so that I can write something myself? Perhaps especially the members of SIGS, whose specialised literature I am obviously unlikely to see, can help with this project. I feel sure that a great chance exists to raise our membership very considerably by some opportune publicity. Let us all make sure that the chance is not missed.

\*\*\*\*\*

### DEFINITION

wysiwyg = what you see is what you get.

# Special Release Software

by John Rogers

With your magazine you should have received the new BASUG Special Release Software catalogue. There are three additions since the last one, ASE (Applesoft Screen Editor), a full screen editor for Applesoft, the Prestel Driver for use in accessing the Prestel system and thirdly, the only game at the moment, Helicopter Rescue. We are hoping for an Applewriter // pre-boot disk for the Centronics and Epson printers.

The BASUG Special Release Software consists of software written by BASUG members that is well tested and documented and does not infringe any existing copyright or licensing agreement. The BASUG Special Release Software is not limited to Apple II+ or similar machines, but Apple CP/M, Apple //c, Apple ///, Macintosh and even Lisa! The BASUG Special Release Software will give the author a good return, free adverts in Hardcore, help in producing the manuals, and be of benefit to BASUG and its members.

Members who are willing to review any of the software for Hardcore will not only get the credit as usual for the article but will also be able to keep the software that they have reviewed.

A number of local groups have taken up my offer of attending one of their meetings with various items for sale, including special release software, disks and back issues of Hardcore. The offer is still open on a one meeting a month, first come first served basis.

If anyone out there has software that they feel is good enough - remember that a good manual can make or break software - or if you can review any of the existing programs, or wish to have the special release software and other items on sale at a local meeting, then please contact John Rogers via the PO Box or on 05827-5100.

We are always willing to hear your hints and tips for using the special release software, like the one below, so please do not keep them to yourselves, write to Hardcore!

Those of you good people with ITT 2020s I have one or two tips for you!

1. A 16K RAM card is required for Business

BASIC, Graphic Pad and Helicopter Rescue.

2. Applesoft MUST be loaded into the RAM card for the Graphic Pad and Helicopter Rescue to work.

3. The Helicopter Rescue has a number of little problems because the author has hidden the 'HELLO' program and not called it HELLO! Also he has used Diversi-DOS which also must be loaded for the program to work. You have to reveal the hidden program (use Locksmith or similar), then using the arrow keys, BRUN the revealed program (it is called 'XXXXXXXXXX' - H = Cntrl-H).

Steps for getting Helicopter to run :-

1. Boot Helicopter rescue disk.
2. Load Applesoft into RAM card.
3. Brun XXXXXXXXXXXX.

4. All of Ian Trackmans' programs have still got the copy protection on them, therefore you will require a bit copier to make back-up copies.

## Special Release Software

Applesoft screen editor	11.95
- Full screen editor for Applesoft.	
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Helicopter rescue	9.95
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- Prestel viewing program.	
Super editor	11.50
- BASIC line editor.	
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- Applesoft debugging aid.	
Syndis	11.50
- Disassembler.	

\* \* \* All prices include VAT and P & P \* \* \*

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This soundly built system is backed by the service and reputation of an electronics company of 24 years standing.



# Bulletin Board Update

by Quentin Reidford

BABBS our Bulletin board has now been running more or less continuously for six months. There have been over 3,000 callers and over 2000 messages posted. Callers have been mainly from the UK but we have also had about a dozen Norwegian, German, Dutch and Finnish callers. For those members without the equipment to access the bulletin board then I should add that the board has a 'front page' of general messages and eight sub-groups for special interests, Pascal, sales & wants etc. The main message area is the most heavily used and occasionally there is a sequence of messages which develop between users, for example we had a series of lively discussions on Bell tones and communications software for the Apple, and there are two people who spend a lot of time tapping in screeds of stuff on Pink Floyd!

It was always my intention that the bulletin board should be run by BASUG as a free access system, not restricted to our members and not restricted to Apple users although it would appear that the majority are. Although your subscriptions have paid for this free service to anyone with a modem it has meant that BASUG has become much more widely known and in fact there are many new members who only heard of us through ringing up the bulletin board. I am particularly pleased about this as it shows that, contrary to common belief, there are still many people who wish to support the service by joining the group and their support will benefit us all through not only the increased revenue but also the knowledge that many have and are happy to share.

The main bulletin board will continue to function in Sheffield as an open system and during this year I know that many more members will manage to scrape together the equipment and join in. The open nature of the board has also caused problems which I had under-estimated, and the original ability of all new callers to leave or <P>ost messages has had to be changed. The 'Wally factor' has caused all kinds of problems, some just operational such as filling up the user log-file with Donald Ducks and the like. Also some enterprising playmate decided to log-on as 'SYSOP' (the system operators universal name) and as I hadn't thought of that he was accepted and

proceeded to leave messages to everyone to do various things all seemingly from me! Recently however some of these antics have become more serious and bounded on the libelous (if that is possible on an electronic message system). To stop this, I have had to introduce a registration system without which a user cannot post any messages at all, except to me on leaving, in which he/she can register. This is still open to anyone regardless of computer persuasion, but unless they leave a sensible name and a telephone number they won't be allowed on. The great pity about this is that the Australians, for instance, who have called, cannot leave a general message to record their expensive 'phone call and say 'Hello'. It always seems to be the few who spoil things for the majority.

However on to other things..... I have had one or two requests from some members who want to run a bulletin board in their area to serve local BASUG members and as the main board is rather stuck together by sticking plaster and brown paper I have been withholding its distribution. Also it needs a lot of disk storage to be viable and most people don't have 1 Megabyte just lying around for that.

Enter our trans-Atlantic friends at Washington Apple Pi - their Communications wizard, Tom Warrick, wrote their bulletin board software and judging by my own experiences has made such a thorough job of it he can't have had much sleep for about two years! Anyhow, Tom has made his excellent software available as public domain, which for something that would cost between £80-100 commercially is very generous. At present the software will only work with the Hayes Micromodem and as I have a Taiwanese modem card which in software terms 'looks' like the Hayes, the software works a treat. I have spent some time modifying this to conform with my own ideas of menu selection, using <P>ost instead of <E>nter for writing messages etc. However the basic essence of Tom's software remains intact (and therefore works!). The beauty of the program is that it will run on a two-drive Apple system, a clock card is a nice but non-essential addition and the only other requirements are an auto-answer modem and a phone line.



There is now a version available which I have sent for which will allow the software to be used with a serial card, certainly the CCS7710 card and I think the Super Serial card. There are other additions to the software which I don't have details of yet but which may include the use of a ram-disk if available.

The major difference between the Washington software and 'Big-BABBS' is that any user must be registered and assigned a password which he uses to log-on instead of the more usual first, last name. In practice this may seem a pest but it makes the messaging and indexing of mail very much easier and compact, and as you can search to see who is on the system file it is quite simple once you use it a couple of times.

This all leads to the proposal that BASUG will use this software to create a network of small (MEMBERS ONLY) bulletin boards. These boards can be run by any of our members who are prepared to commit their phone, equipment and time. I hope that we can develop a unique service throughout the country to BASUG members, with perhaps each board having its own theme which would encourage members from other areas ringing more distant boards either to contact a local user or to extract information he knows is likely to be on that particular board. I would ideally wish to distribute a User file to all the SYSOPs which would contain the same USER IDs so that each member would be registered on each board. The user id for each member would be his BASUG membership number preceded by either BAB or BB, depending on whether his/her number was under or over a thousand. For example member no. 576 would have the ID BAB576 and member no. 1234 would have the ID BB1234. The ID would then have a full stop and a four character password e.g. BAB576.FROG. Any member wishing to register would leave his name and BASUG number along with his desired password in a message to the SYSOP and that would be processed within a day.

Here then are the simple rules for any members who want to run one of these regional boards;

a) You must be prepared to run the board at regular times either during the day or in the evening or during the night. These times and the 'phone number will be posted in the

UPDATES which appear between issues of Hardcore and therefore will not be available for public consumption. There is no requirement to run a board on a 24 hour basis although this would be very desirable.

b) You must not run a board based on any undesirable aspects of computing i.e. pirating software.

c) The user log file will be supplied by me although there will be lots of latitude in choosing your own helpers who have access to maintenance bits of the software.

d) The MINI-BABBS boards will be run only under the auspices of BASUG and for the benefit of BASUG members. Any SYSOP wishing to allow access to other groups or individuals may do so on a 'blanket' basis i.e. Washington Apple Pi Users have the overall ID of BAB050 rather than individual IDs for each caller.

If members want to run one of these mini-BABBS then please 'phone me on (0742) 661096 - between 8 & 10pm - or leave a private message on the main board to me.

Any member with BELL 103 capability can phone (0742) 661096 after MIDNIGHT and try the MINI-BABBS out, also (0225) 742616 again on BELL tones. Remember these are our HOME numbers so don't call (with a modem!) before Midnight or after 8am and if the 'phone rings more than twice something has gone wrong and the board is off-line, so hang up!

They will run for a few weeks as an experiment until the serial card version is available and probably after that they may run at different times on CCITT tones.

If we can get this facility running then BASUG will be the first user group to have a nationwide network of dial-up bulletin boards for its members. Hopefully we will have them from Wick to Plymouth offering interesting topics and local events for any of us to call up and use. I particularly hope that the more Northerly members will participate as there is a distinct lack of support for them at the moment, and this may stimulate interest for those Apple users who feel left out of things at the moment.

# Printer Card Survey

Thank you to all those who contributed.

KEY: Y = yes

N = no

P = parallel

S = serial

B = both

? = some success, more work to do - = would be welcomed if available

G = Grappler routine works with this.

+ = Can be bypassed with two User Defined Commands which jump to routines (which you must write the code for) starting at \$300 or \$0000 in RAM card in slot 0

NAME	MANUFACTURER	\$	MANUAL	P	S	CABLE	PASCAL	CP/M	BUFILE	URGENT
(1) CCS 7728 CENTRONICS PRINTER INTERFACE	CALIFORNIA COMPUTER SYSTEMS	90	FAIR	P	N			N		
(2) APPLE/EPSON 8132	EPSON	90	INDIFFERENT	P	Y	Y	Y	N		
(3) WESPER WIZARD BPO	WESPERCORP USA	120	HAS INFO. BUT BADLY PRESENTED	P	Y	Y	Y	Y	Y	Y
(4) ARISTOCARD	SIMON COMPUTERS LTD.	80	ADEQUATE	P	Y	Y	Y	N		Y
(5) PRINTMASTER	DIGITEK	70	BAD	P	Y	Y	Y			N
(6) GRAPPLER PLUS	ORANGE MICRO INC., ANAHEIM, CALIFORNIA, USA	110	GOOD	P	Y	Y	Y	Y	N	N
(7) CPS MULTIFUNCTION	MOUNTAIN COMPUTER	160	FAIRLY GOOD	B	N	Y	Y	N		N
(8) CW/P SUPER PARALLEL CARD		72	INDIFFERENT	P	Y	Y	Y	N		N
(9) APPLE II INTERFACE KIT TYPE 2.	EPSON	98	BAD	P	Y				N	N
(A) APPLE II AP-PAK	MICRO PERIPHERALS INC. 4426 S. CENTURY DR., SALT LAKE CITY, UTAH 84107, USA	99	GOOD	P	Y				Y	3

R = rotation

\$ = scaling

D = different densities

I = inverse

M = margins

\* = double size

% = independent X &amp; Y scaling

1 = both pages

# = 90 degrees

X = some versions

1 = 32k

2 = buffer add-on &amp; buffered card available

3 = 2k

4 = Silentye

5 = Grappler

6 = Apple Centronics

	BYPASS	SCREEN DUMP				COMB	BAUD RATES			S	COMMENTS
		40	80	LO	HI-RES		MIN	MAX			
(1)											It is not a card supported by the DIVERSI-DOS buffer which one member uses.
(2)		Y	Y	N	Y						Printer: Epson FX-80. LCC chip largely overcomes screen dump limitations except 90 degree dumps. CP/M needs patch.
(3)		Y		N	IRAMI	Y					Printer: Epson FX-80. Features: extended width listings WITHOUT word splits, sets page lengths, processes mode commands & allows high order bit output and graphics in Pascal.
(4)						Y					No problems.
(5)	G	Y	X	N	!#*MID	5					Printers: Epson FX-80 & MX-80 F/T Type III and Shinwa CP-80 type 1. Features: page length, auto line feed, eight bit mode, line length, suppression of syntax error flag, Silentye emulation with Visiplot. No problems.
(6)	Y+	Y	Y	N	!#\$*D	Y					Printers: Anadex 9000(&A),9001(&A),9500(&A),9501(&A),9620, Epson MX-80,MX-80 F/T with Grafrax80 or +,MX-100(& with Grafrax+),FX-80,RX-80 F/T, NEC 8023 & DMP 85, Apple DMP, C.ITOH 8501A, OKIDATA 82A,83A(+ upgrade),92,94,84, Star/Gemini 10/15. Pages 1 & 2 can be printed side by side. Colour version for IDS printers. 8th bit output.
(7)	N-	N	N	N	N	Y	50	19200	N		For Pascal/CP/M you need extra set-up disks at £15 each. Clock/calendar & facility to load device parameters from disk (with battery back-up). Can be used in terminal mode & linked to modem.
(8)	G?	Y	N	N	!#DI*	Y					Printer: Star DP510. Card supplied with PROM for Anadex, Epson or Microline printers (Star uses Epson) which can be replaced by RAM with user's routines. 8th bit output, printer bell control.
(9)		N	N	N	\$D						Printer: Epson MX-82 type 2. Features: print formatting routine, Prints pages 1 & 2 alongside
(A)					Y						Price includes FONTWRITER disk. Printer: MP1 996 Does not support AW2 conventions. Very reliable.

NAME	MANUFACTURER	£	MANUAL	P S	C ABLE	P ASCAL	C P/M	B U L D I N G	U N I T	U N I T
(B) BLACKBOARD	LEICESTER COMPUTER CENTRE	99		P	Y	Y	Y	Y	N	Y
(C) CGS SERIAL 7710A	CALIFORNIA COMPUTER SYSTEMS	99	INDIFFERENT	S	N	Y	Y	N	N	N
(D) APPLE SUPER SERIAL	APPLE	109	GOOD	S	Y	Y	Y	N	N	N
(E) PKASO	INTERACTIVE STRUCTURES INC.	130	GOOD	P	Y	Y	Y	N	N	N
(F) GRAPPLER	ORANGE MICRO			P	Y	Y	Y	N		

## Exhibitions

It is a beautiful Sunday morning with the sun streaming its rays through the window. A cassette on the tape recorder is quietly playing Bach's 'Air from suite No. 3 in D' and I have to turn my thoughts back to the innumerable, discordant noises and hundreds of queries and questions of a week ago. It is a hard life. Exaggerations, of course, as the two most recent exhibitions have shown. Members who have answered the call for more assistance at the various shows we attend around the country have not only said how much they have enjoyed themselves but have actually returned for more.

Apple 84, our most important show of the year, was a great success. In the course of the three days that the show ran, we gained approximately fifty new members who actually signed up at the stand. Hopefully, a number of others who took our application forms away with them to fill in later have also joined our ranks by the time that you read this. Besides signing up new members we were kept extremely busy answering queries and giving advice. It is not until you have ever tried this that you discover how much more you know about the Apple than you could ever have guessed.

The show itself appeared to be smaller than the 1983 version but this may have been because the stands were more tightly packed together than they have been in the past. Certainly the quality and the number of products on display had not diminished.

Apple UK took pride of place on the stage showing their full range of equipment. This included the new Mac, the Apple //c and a number of software packages for their machines. Appleworks, the integrated Word Processor, Spreadsheet and Database program that the company hope will do for the new range of Apple // systems what Visicalc did for the original Apple II and II+, was also much in evidence on the stand.

Over forty other exhibitors were showing their wares. They included Pete and Pam (now P & P Micro Distributors), Robocom, who were showing the new Bitstik 1500, Dark Star with its new product 'The Shuttle' and Keyzone with their new Spectrogram RGB card for the II and IIe. The company were also showing a colour converter for the Apple //c which, they claim, is the first of its kind on the market. Greengate, a new company, had the Rock/Pop duo 'MAINFRAME' demonstrating the new DS3 digital sound board which was also featured on the Tomorrow's World programme during the evening of the first day of the show and since then on Yorkshire television's 'Me and my Micro'.

Symbiotic were also there registering the name of each new visitor to the show on a hard disk via their Symbnet networking system using Apple IIc's. Thirteen lucky names were later selected at random from this database as part of a draw for prizes ranging from a complete Apple system to an Apple User sweatshirt.

All in all, this was a very pleasant show for those of us on the stand. Not having to

	BYPASS	SCREEN DUMP					BAUD RATES			COMMENTS
		40	80	LO	HI-RES	ROM	MIN	MAX	S	
(B)	Y	Y	Y	N	R&TOM!	5				Has "hex mode". Allows any ASCII character to be sent from a text file. Can convert \$ to & automatically.
(C)	Y	N	N	N	N	N	50	19200	N	
(D)	Y	N	N	N	N	Y	50	19200	Y	Split baud rates under software control. //c has emulation of serial card built in.
(E)	Y	Y	N	Y	R&TMD!	6				Printer specific. You must buy the version to match your printer. Lo-res is printed with grey scale.
(F)		Y								Possible fault in CP/M & Pascal compatibility. The Grappler+ allowed CP/M and Pascal to output to printer but reduced 80-col screen to a 'shimmering snowstorm'. The Grappler cleared this but its failure to support 80-col cards can be irritating.

suffer the noises of guided missiles and fighter aircraft of Sinclair, Commodore, BBC and Oric machines was greatly appreciated. Thanks go to all those members who stopped by to help even for a short time. Unfortunately there is not enough space to mention you all but special thanks go to Mike Dawson and John Rogers who spent a full day on the stand, also to Fran Teo, Peter Trinder and Dick Pilgrim who were at the show for all three days. Dick, who recently arrived back from the Middle East where he and some friends have their own very knowledgeable user group, travelled all the way from Middlesbrough mainly for the exhibition.

By contrast, the London Computer Fair at Earls Court in June was very much the noisy, non-Apple event that it always is. Despite the fact that it has grown five or six times the size it was three years ago, the show still looks a little lost within the vastness of the hall that annually plays host to the Ideal Home Exhibition.

Only Ozwise Computers of Harrow and Silicon Valley of Holborn, London were showing Apple hardware in the form of Macs and //e's although Dave Tsang of Stack Computers took over a cancelled stand at the last minute and was selling a number of add-ons and manuals for the // series of machines at very low prices indeed.

The Boot Out company were one of the few selling Apple software and Saga Systems of Surrey, who were supposed to be showing an Apple compatible keyboard amongst other

things, were only able to set up a static display due to pressure of work. Look out for a review of this keyboard in a later issue.

One stand that caught the eye of many of the user groups at the show was that of Honeyfold Software. The company were showing their brand new assembly language course for a wide range of systems including the Apple. Being sold under the 'Dr. Watson' banner, it contains a complete 6502 assembler on disk and a 200 page tutorial for the all-in price of £14.50. A copy of the Apple version has been presented to the group for evaluation and review by Kerr Borland, the managing director of the company.

Thanks are in order to Bob Thong, Mike Dawson (again) and Tony Williams who, despite the Chairman's comments in the last issue, is once again a fully paid up member. Thanks also to Gilbert Waterman and our administrator Fran Teo who both spent three of the four days of the show talking to people about a wide range of subjects and recruiting even more members.

If you would like to join the growing number of our members who are finding out how interesting it can be on the other side of the stand then drop us a line or ring Fran on the administration phone number for details. The next two exhibitions this year are The Personal Computer World Show at Olympia London 19th to 23rd September and the Northern Computer Fair at Manchester 22nd to 24th November. See you there.

# Mac Alarm

Macintosh Alarm Clock

by Tom Warrick

Reprinted by kind permission of Washington Apple Pi (April 1984).

One of the more useful features on Apple's new Macintosh computer is an alarm clock. The alarm clock is a "desk accessory" that can be called up for viewing at any time, even during the execution of an application program such as MacWrite or MacPaint. The alarm clock sets up a small window containing the time, and the window can then be moved to an out-of-the-way location on the Macintosh screen (called the "desktop") where it will continue to provide the current time.

The alarm clock's utility, however, is diminished by the fact that the alarm feature is not explained in the otherwise excellent Macintosh documentation. In all likelihood, the alarm feature was added at the last minute after the documentation was sufficiently advanced such that it would have been too costly to revise it. As things stand, the alarm clock is an extremely pleasant feature that a user can discover for him or herself.

Figure 1 shows the alarm clock window open while MacWrite, a word processing program, is in operation.



Figure 1

The small square at the left of the window allows the user to "close" the clock window by pointing to the box using the mouse and pressing the mouse button. In the centre of the window the current time is displayed in hours, minutes and seconds in standard

twelve-hour notation. (Astute readers will be able to determine when these figures were printed out.) The final symbol, above the pointer arrow, is supposed to be a lever that opens the "Change" portion of the window.

Pointing to the lever and clicking the mouse button reveals four additional areas, as shown in figure 2. The three bottom areas indicate and allow the user to select what will be in the middle area. Clicking on the clock face in the lower-left area puts the current time in the middle window so that the user can change the time. (Changing the time can also be done from the Control Panel, another desk accessory.) Clicking on the calendar pages in the lower-centre area, as was done in figure 2, puts the current date in the middle window so that the date can be changed. (Changing the date can also be done from the Control Panel).

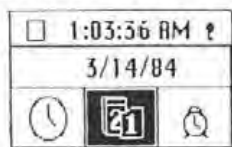


Figure 2

Clicking in the lower-right area, as has been done in figure 3, brings the current alarm setting into the middle area. The time is shown in standard fashion. Whether the alarm is set or not set is shown in two ways. As it appears in figures 2 and 3, the alarm on top of the clock in the lower-right area seems quiet. As shown in figure 4, although it can barely be seen in this reproduction, dotted lines radiate away from the alarm bell. This indicates that the alarm is set to go off.

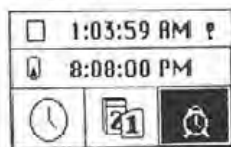


Figure 3

The little pictogram to the left of the time in the middle window is the on-off switch, and provides a second indication of whether the alarm is set to go off. "Down", shown in figure 3, indicates that the alarm is off. Pointing to this pictogram and clicking the mouse button flips the switch to the up position, as shown in figure 4, and sets the alarm to go off at the appointed time. The display in the lower-right-hand window is



# WILD-WORD

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changed accordingly. If the alarm is set, clicking on the switch clears the alarm.



Figure 4

To change the time, the date or the alarm setting, the user points to the portion of the time or date to be changed and selects it by clicking the mouse button. The month, day, year, hour, minute, second or am/pm are each selected separately. Selecting one of these fields "highlights" it. ("Highlight" is the Macintosh word for inverse, or white drawings on a black background.) When a field is selected, two arrows appear to the right of the date or time, as shown in figure 4. Pointing to the up arrow and clicking increases the number shown in the highlighted field, and pointing to the down arrow and clicking has the opposite effect.

When the alarm goes off, the effect is subdued as is appropriate in an office environment. The speaker sounds once the same pleasant bell tone that appears when the Macintosh is powered on. In addition, the Apple symbol on the left of the Menu Bar (see figure 1) flashes repeatedly from inverse to normal and back to alert the user to the fact that the alarm has gone off. The flashing Apple can be cleared by turning off the alarm using the procedure described above. Because the flashing Apple is sufficiently distracting to have always attracted my attention, I have always turned off the alarm myself. I have not yet been able to discover whether the alarm will go off every twenty-four hours if the flashing Apple is not cleared.

## Mac Notes

by Tom Warrick

Reprinted by kind permission of Washington Apple Pi (April 1984).

Macintosh owners should note that there appear to be two different and somewhat incompatible versions of the Macintosh operating system. The first appears on the Guided Tour disks and the second is on the

System Disk. Attempting to read a disk created with the first operating system while running the second destroys the hierarchical structure (the "file folders") of the disk's primary file directory.

This is not fatal to the information on the disk, however, as the Macintosh disk operating system has saved a secondary file directory elsewhere on the disk, and when the primary directory is destroyed, it can be recreated using the secondary directory. While the files on the disk are recovered intact, all file folders are lost.

In normal use this would be a trivial inconvenience, as file folders can easily be recreated, but for the Guided Tour disks, the placement of particular documents in particular folders and the placement of folder icons on the desktop are important to the proper operation of the Tour. Further, Guided Tour disks are copy-protected and so cannot be backed-up. As a result, users should exercise caution when using Guided Tour disks. Errata to the Macintosh manuals advise turning off the Macintosh before running the Guided Tour, and this caution should be extended to turning off the Mac before even inserting one of the Guided Tour disks.

Loss of file folders on the Guided Tour disks will not make the Tours meaningless, but it will make several of the demonstrations pointless or confusing, as the Mac will attempt to point to a non-existent pull-down window or open a non-existent file folder. Note also that it appears that Microsoft's BASIC for the Macintosh also uses the earlier operating system, and should be treated in the same way until an update comes out.

On a separate subject, it appears that there is a major bug in the initial release of Microsoft's Multiplan for the Macintosh. As I understand it, the bug materialises when the user attempts to force recalculation following a cut-and-paste operation. The effect of the bug may be the complete and irretrievable loss of data in memory. Microsoft is reported to be aware of the bug and has a team of programmers working on a fix. Indeed, by the time this appears, they may have solved the problem. People interested in purchasing Multiplan should make sure that the copy they purchase has the correction.

# Word Wrap

by Tony Game

In response to the appeal for more listings in *Hardcore* in the last issue, here is a handy little routine to print strings to the screen or a printer without breaks in the middle of words. Put the routine at the start of the program for speed, define PL as the print length, and send the string to the routine as NS. Much more can be done, for example left margins can be set by POKE 36,X in lines 90 and 140. Concatenating the strings on the page gets complex fast but I have a routine for it if anyone is interested.

How about some of you Assembler nuts producing a relocatable M.C. routine for us to do this? It needs to count back to a space and then carriage return, as padding with spaces inevitably leads to STRING TOO LONG.

10 REM WORD WRAP - TONY GAME

11 :

20 TEXT : HOME : GOTO 1010

30 LN = LEN (NS)

40 IF LN < PL THEN 140

50 AAS = LEFT\$ (NS,PL)

60 IF RIGHT\$ (AAS,1) = CHR\$ (32) THEN 80

70 AAS = LEFT\$ (AAS, LEN (AAS) - 1): GOTO 60

80 IF LEFT\$ (AAS,1) = CHR\$ (32) THEN AAS =

RIGHT\$ (AAS, LEN (AAS) - 1): GOTO 80

90 PRINT AAS

100 IF LEN (AAS) = LEN (NS) THEN 150

110 NS = RIGHT\$ (NS,(LN - LEN (AAS))):

IF LEN (NS) > PL - 1 THEN 30

120 IF NS = CHR\$ (32) THEN 150

130 IF LEFT\$ (NS,1) = CHR\$ (32) THEN NS =

RIGHT\$ (NS, LEN (NS) - 1): GOTO 130

140 PRINT NS:

150 RETURN

151 :

1000 REM PROGRAM PROPER

1001 :

1002 :

1010 PRINT : PRINT : INPUT "HOW MANY  
CHARACTERS TO THE LINE ? "; PL: PRINT

1020 NS = "THE QUICK BROWN FOX JUMPED O  
VER THE LAZY GREEN DOG WHICH WAS A  
STUPID THING TO DO, AS THE LAZY GRE  
EN DOG WAS ACTUALLY A DECOY FOR A  
YELLOW, SHARP PANTHER."

1030 GOSUB 30: GOTO 1010

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The minimum requirements for the FX-80/100 editor are a 48k Apple II+ or Apple IIe, with a DOS 3.3 disk drive and, of course, an Epson FX-80 (or FX-100) printer with a parallel interface card in slot 1.

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# Book Reviews

2 books received, and put in the literature library.

Reviewed by Bob Raikes.

Title: M68000 16/32-bit Microprocessor.

Programmers Reference Manual.

Author: Motorola.

Publisher: Prentice-Hall.

Price: £15.25.

Paperback : 9.2" x 7" : 218 pages.

This is the manufacturers manual, and is a little dry. Not for the faint hearted or beginners.

Title: The Apple Almanac.

Authors: Eric E. Goetz & William B. Sanders.

Publisher: Reston Publishing Co. Inc.

A Prentice-Hall Company.

Price: £17.95.

Paperback : 8.25" x 11" : 240 pages.

Apple II, //e reference manual. Usual Hex/ASCII charts, Applesoft Integer tokens, Peek Pokes & Calls, DOS memory usage & Tables, Graphic address charts etc. Quite a lot on Shape tables including an ASCII character set table. A useful chart is given, showing the bytes that are different in the //e monitor. A cross between the Apple reference manual, 'What's where in the Apple' and the quick reference from 'Beneath Apple II OS'. If you have these then it's not worthwhile, if you haven't, it may be if you want all the information in one book.

Title: Applesoft BASIC for the Apple II & IIe.

Authors: Lois Graff and Larry Joel Goldstein.

Price: £14.35.

Paperback : 9.25 x 7 inches : 328 pages.

Publisher: Robert J. Brady Co. (Prentice-Hall).

Reviewed by G.H. Ashdown.

A first look at the Contents, then a glance at the Index. Looks impressive. Then into the preface. If this book does what it claims, then the intending buyer need go no further than the nearest Cash Point.

This book maintains the standards usually associated with the Publishers. No error

could be found, and the programs worked. The real questions are whether this was just another book, whether it was value for money, and why should this book be chosen in preference to others.

A step by step progress through the pages does not cause any hassle. If you thought of a question, and wanted to search back to refresh your memory, you need not bother, because the point was either explained again, or a reference was given. The type and layout are cleverly altered to make a neat presentation, and assist the reader in knowing whether he is learning facts, or should be copying for the hands on experience. No learning experience is extended, as each subsection when completed gives the reader a sense of satisfaction. Do this - the computer will expect - do that - and the computer does. No concept could be easier. And it is done exactly as the print in the book expects it to appear.

The conclusion is therefore that this is not just another book, but one in which the authors have seen other books and their shortcomings or limitations, and have set out to overcome them. They have succeeded. You would wish that you had seen this one first. Is it a book to buy, on top of the others you already have? If somebody else in your family wants to learn Applesoft Basic, then do not hesitate. It is a good excuse to supplement your own reference library. It will soon become the most frequently used. Do you need any more excuses? By page 66 you will be writing a program to check your Bank Account, and by page 71 your first simple game. By page 96 you will be checking on your Hire Purchase Company, and by 106, your Mortgage. You will then be keeping monthly records, and tabulating them (197); have a simple Word Processor (237); be making animated pictures and doing other graphics (277); and finally be a budding Tchaikovsky (287). The whole process will have been a lot easier than relying on the books supplied with your Apple.

Title: Disks, Files & Printers for the Apple II

Authors: B. D. & G. H. Blackwood

Publisher: Howard W. Sams & Co.

(Prentice-Hall International)

Price: £13.55

Paperback: Spiral bound, 9" x 6", 262pp.

Reviewed by Brian Whalley

In the first sentence of their preface the

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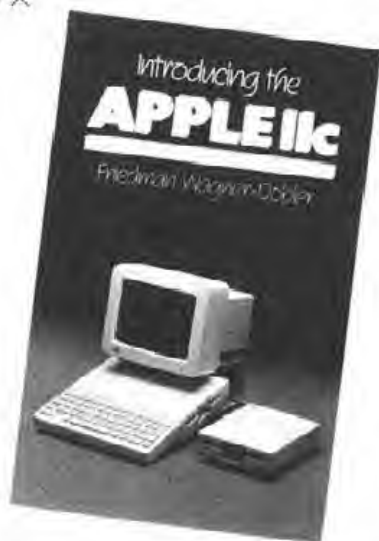
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authors say that this book was written "for students of all ages who are interested in studying the first level of list processing, or files". After some standard introductory chapters on disks, DOS, and the loading and saving of programs, the book deals first with sequential files and then with random access files and the "linked list" technique for handling them. They use an approach which involves the development of programs to handle the "business records" of a small wholesale company. A final chapter on printers is followed by an Appendix on decimal/hex conversions. Whether the book really succeeds in teaching file handling I shall never be sure, because the way the authors use language repeatedly distracts me from what they are trying to say.

To be fair to the authors; they have been very badly served by their editor and publishers. Listings of program sections (some typeset, in a different font from the main text, some reproductions of dot matrix output) are haphazardly mixed not only with the text but also with sample program runs apparently printed on a daisywheel printer (with the print sometimes reduced by about 50%). Add to that the use of capital letters for commands and every program, file, record or variable name, plus the use of bold face type of various sizes for headings and figure titles, and it is not surprising that it's possible to open the book on what seems like total confusion.

Ungainly or obscure use of the English language, however, is the responsibility of authors rather than of publishers. Statements like "the computer user should learn to think in hexadecimal to understand the computer, so decimal must be converted to hexadecimal and hexadecimal must be converted to decimal" must be responsible for de-activating many of those "students of all ages" they want to reach.

After meeting two types of file, sequential and random access, I am confused to be told later that "files are classified according to the way they are built or used" and "the four classifications are: (1) source, (2) destination, (3) source-destination or (4) piggyback" with the last of these described as "a file built one section at a time". This is my first contact ever with the term "piggyback file" and I've not been able to find it in any computer book index, not even that of the one under review!

After pointing out quite reasonably that in

computer publications "references are continually given to the binary, decimal and hexadecimal representation of the ASCII code" (though I'm not aware of binary references being all that common), the accusation is made that references to ASCII seldom provide a figure or table relating numbers to characters. What a pity the reader is not directed to Tables 2 and 3 in the Apple II Reference Manual or Appendix K in the Applesoft Manual. However, the Blackwoods are in some ways thorough, presenting their readers with "ASCII Character Codes" and "Bit Positions of Binary ASCII Code" in Tables 1-4 and 1-5 and again identically in Tables 7-4 and 7-5. I wonder why only Table 1-4 is indexed under ASCII?

I also wonder why the authors bother to index variable names used in their sample programs, but not PR#, IN# or DS? Some of their advice is confusing and ignores obvious simplicity. One example relates to reclaiming disk space when a large program has been edited. Saving the new shorter version with the same name as the old will leave the same number of sectors allocated and thus wasted. So, they suggest, with the new shorter version in memory, delete the existing longer disk version and then save the new version. This technique, they say, "is very good, with one exception. Should power be lost to the computer before the SAVE is complete, the program will be lost" - very true; yet the simple device of saving the new version under a temporary name (like NEWPROG), then deleting the original version and RENAME-ing the new one, has escaped them!

By far the most puzzling feature is the final chapter of twenty-six pages devoted to printers. In their Preface, the authors state clearly that "a record stored on disk must be printed in hardcopy form to be of general use" and that "the printer is the final destination of the file". Why, oh why, in that case, do their two major file handling demonstration programs (for sequential files and random access files) not include printout options? In a tutorial book of this kind, sending the reader to his or her particular printer's manual for specific guidelines after a brief introduction to printer initialisation and control codes, would have been perfectly acceptable. As it is, we are shown the results of "formatting", plus the use of codes etc. for three specific printers. Little is said about the actual hardware and no conclusions are drawn about the output or printer characteristics.



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What conclusion shall I express about this book? Visually, it is terrible. Technically, it is weak, and there are better books on file handling and the writing of data file programs (David Miller's "Apple Files", for instance, or even Finkel & Browns rather odd self-teaching guide). As a learning tool, it fails to motivate, and it mixes obscurity with pedantry. For me, the following sentences from the first page of the Preface (which is the author's chance to catch the attention of the bookshop browser) epitomise this book: "The linear, bidirectional, motion of tape required that records be placed one after the other, or sequentially. If the first record in the file was read, and the next record to be read was the last record in the file, it took a long time to get from the first record to the last record. To get from the first record to the last record, the tape had to run sequentially from beginning to end. This took a relatively long time. The time to get from one record to the next is called the access time. The access time of a sequential access record file is slow".

Title: Exploring Applesoft

Author: Roger McShane

Publisher: Prentice Hall

Price: £13.45

Paperback : 23x15cm (9x6ins) : 170 pages

Reviewed by Dave Miller

Exploring Applesoft has been written in response to the needs of three groups: first-time students to computing, students who would study programming for fun rather than as a discipline and people who find the more traditional approaches to programming hard to understand. The methods adopted by this book to get programming ideas across are not heavily biased on syntax but concentrate on fun: syntax is introduced incidentally.

The book is split into six lessons. Each lesson has exercises dispersed throughout it. Lesson one has a useful section headed 'Teacher activity', unfortunately the only occurrence in the whole book. Each lesson (except six) is followed by an interlude where the topics covered in the lesson are supplemented.

There is no introduction, the reader is

thrown in at the deep end. There is no information on turning on the computer and starting up Applesoft. I can see many readers struggling to get their machines up and running ("Why do the disk drives go on?" or "Why does the machine print a '\*' and print odd numbers and letters?"). Assuming the reader managed to set the machine up, I wonder how many were waiting for their machine to do something while it is waiting for them to press RETURN for some time. Also there is some ambiguity: does the reader type 'GR' or 'JGR'? This is not trivial to a novice.

Lesson one deals with GR, PLOT and COLOR=. The idea of writing programs by prefixing commands with line numbers is dealt with along with RUN, NEW, TEXT, variables, looping and conditional commands. This might seem like a lot but each topic was dealt with simply and not in the thorough nature common in most other books. This is intentional. Use is made of 'programming models' quite unlike the models I am familiar with. They consist of apparently free-hand cartoons showing little apples doing various things. The first model shows an apple (fruit) drawing on a squared paper with a pencil to illustrate PLOT. The first interlude discusses the use of TEXT, LIST and line numbers. The concept of reserved words is touched upon since they cannot be used as variable names.

The second lesson introduces high resolution graphics. HGR, HCOLOR= and the available colours are covered along with various forms of HPILOT. A program is developed which involves the further use of variables. The second interlude covers the use of STEP in FOR loops, STOP and CONT.PRINT are introduced as a debugging aid and DATA, READ and INPUT are briefly touched upon. For most readers these commands would be too advanced at this stage.

Lesson three introduces HOME, VTAB, PRINT, NORMAL, INVERSE and FLASH. The demonstration programs are already quite advanced: one in this lesson simulates a digital clock on the text screen. The third interlude discusses some of the intrinsic functions offered by Applesoft; mainly RND, INT and ABS. The book is specifically non-mathematical so the trigonometric functions are only listed.

In lesson four the INPUT statement is described along with the string functions: LEN, CHR\$, LEFT\$, MID\$ and RIGHT\$. The final

example program simulates word wrapping found in most word processors. This gives an indication of the level the reader has been brought to with very little conscious effort on his/her part (assuming he/she understands the example!). The fourth interlude introduces the REM statement.

Lesson five introduces arrays. A very good programming model uses the analogy of a group of hotel rooms to put across the idea of a group of variables all with the same name indexed by a 'room number'. It also briefly introduces sorting (the algorithm looks like the bubble sort) and how to extract the maximum and minimum values from a list of data. The fifth interlude talks more about program documentation and suggests a structured approach to line numbering (similar to that imposed by Basic code-2).

The last lesson discusses the idea of subroutines and the use of Applesoft shape tables. I was very impressed with the graphic demonstrations used to show the use of shape tables.

Following this are four Appendices. Appendix A contains a command summary. This is a cut down version of the Applesoft reference manual with the mathematical functions omitted. Each command has a brief explanation, some examples, some 'hints' and a few exercises. While most of the explanations were reasonable, some used unexplained terms e.g. the explanation of CLEAR is: "This command zeros all variables and arrays and sets all strings to nulls. It also resets all pointers and stacks". There is no explanation of 'pointers', 'stacks' or 'nulls'. Appendix B is a list of error codes (including DOS errors). Again it is on the whole clear but terms have been used with no explanation. Appendix C contains a list of ASCII characters. Since the book was written for the Apple II the list is incomplete but I would like to have seen a complete one anyway since quite a few Apples now either use hardware or software to get full ASCII sets. Appendix D contains two subroutines which will set up the shape tables used in the book. Thankfully the reader does not have to know how the Apple actually constructs shape tables.

The book itself is easy to read and neatly presented. The style of writing is informal but not too casual. The listings were in the

same type style as the text which could account for the few errors I found (such as the '3' missing from 'HCOLOR=3'). All the programs worked and most used the graphics and text facilities of the Apple imaginatively. I have only two criticisms: the referencing of GOTOS to REMarks and a jump made out of an active FOR loop. The latter is very bad, even if the program looks impressive when it's running. I also feel that this book makes the mistake of saying that subroutines are only useful to remove code repetition. Although program modularisation is mentioned I feel that it should have been stressed more.

I have one major complaint: there is no glossary. The text of the book is good since it discusses technical terms before they are used but I feel that any book which teaches novices should contain a glossary even if the author feels that the text renders it unnecessary.

To sum up I feel that this book is very good but not faultless. It introduces programming using an informal approach which will only work if the reader uses the book while at the keyboard. The examples and exercises are, on the whole, very good and illustrate points in the text. The Appendices are slightly high level and I feel that some readers will not be able to use them to the full. This is not helped by the absence of a glossary.

The book is ideal for the novice computer user who wants to learn something about programming but does not want to learn about computer science. This book seems especially ideal for use at a computer camp or at school, where the computer tutor/teacher is experienced in computing and can give additional information which would be inappropriate in the book.

Gourmet Note from Roger Harris.

#### Ice Cream with your Apple

Sainsbury's 4 litre plastic ice cream carton will hold over fifty 5.25" floppy disks when emptied. It costs £1.58; the flavour is vanilla.







Title: Apple II Applications  
Author: Marvin L. De Jong  
Price: £11.95  
Paperback : 8 x 6 inches : 236 pages  
Publisher: Howard H. Sams

Reviewed by David Moore

This book will appeal to all Apple owners who want to know how their computers work. It is assumed the reader has a working knowledge of electronics.

The first chapter covers RS232, modems and I/O facilities provided by these devices. Most of the references are to American systems and devices but it is quite easy to equate these to the UK and European systems. All aspects of using and installing are demonstrated by sample programs and associated hardware.

Chapter two deals with the games I/O port and is filled with lots of DIY projects which are easy to understand and build. Chapter three covers Eproms, their functions and programming requirements. It describes the 2716 in detail and its many uses. A very useful DIY Eprom eraser is described as are two proprietary Eprom Boards.

Chapters four and five cover A/D and D/A converters - again, a very thorough description of these devices and their uses. There are some very interesting projects that demonstrate the various functions that can be performed by these converters. Chapter six covers timing and counting and discusses the 6522 Versatile Interface Adapter (VIA). All aspects are covered together with numerous programs that show why it is called versatile.

The book is well rounded off with two worthwhile Appendices. Appendix A is a two-page aide-memoire on the loading and execution of machine language programs and Appendix B is a reproduction of the programmers reference for the 6522 VIA.

References are made to components which could be supplied by Radio Shack. Many of these components can be obtained from the UK branch of Radio Shack (Tandy UK). A visit to one of these stores could prove rewarding if you are going to construct any of the DIY projects. A word of warning - some of the projects described require hook-ups to be made to the Apple II. Remember to switch off

before making any connections.

Apart from these obvious points, a very interesting book packed with lots of useful information.

Title: Animation, Games and Sound for the Apple II/IIe.

Author: Torry Fabri.

Price: £14.35.

Publisher: Prentice Hall.

Softcover: 178 pages : 6.75 x 9 inches.

Reviewed by Patrick Bermingham  
M.Sc., D.I.C., C.Eng., M.I. Mech.E.

This is a book for the beginner, the person who has just acquired an Apple, who has no knowledge of computers or programming, and who wishes to learn about computing in an interesting but non-academic manner. The author entices the reader to work through a cleverly planned set of simple Basic programs, each of which builds something onto the preceding one.

First comes a program to print one's name on the monitor screen. This is then modified to print the name at various positions on the screen; and almost unconsciously the reader becomes familiar with the TAB function and the DO LOOP. From this simple beginning the reader is led effortlessly through programs which create simple shapes on the screen, using keyboard characters only, which are later animated. Game programs follow, involving sounds and falling objects, culminating in the design of games programs based, in turn, on a racing car, an aeroplane and a ship which has to avoid falling bombs.

It is the sort of book that I would have liked to have had by me when I first got my Apple II and its overwhelming set of manuals. The author lets the reader do exciting things with the computer and as a consequence the reader is bound to learn about computers and enjoy using them. It is certainly a book for the young at heart.

An interest in games programs has been the launching pad for many a career in computers. Although a useful book, at £14.35 it is overpriced.



Title: p-Source

(A guide to the Apple Pascal system).

Author: Randall Hyde

Publisher: Reston Publishing Co. Inc.

(A Prentice-Hall Company)

Price: £22.45

reviewed by Richard Beck

This book is subtitled "A guide to the Apple Pascal system" and fulfils that claim admirably. Its intended audience is probably the experienced Apple Pascal programmer who wishes to both know more about and get more from the P-system. The book's 450+ pages are divided into 3 sections written in a lucid "reference manual" style and not, thank heaven, in the more usual American "laugh a minute" style. This added to its readability as far as I was concerned.

Section one of the book deals with advanced Pascal programming techniques, optimisation and the generated p-code patterns of common Pascal control structures; thus giving guidance for choosing the most time/space efficient construct. Some of the optimisations are based on a knowledge of the generated p-code and hence were not immediately obvious, so this section was very useful.

Section two describes the various p-codes much as an equivalent assembly language guide would. The action of each op code is explained on one page and its effect on stack and register contents represented diagrammatically on the facing page.

The final section explains the p-code interpreter. It gives the start address of all major subroutines and explains their usage. All the routines that emulate the p-machine on the 6502 are also detailed. Part of this section also deals with the optimisation of the p-code emulation by rewriting certain routines. The method of attaching various foreign devices to the p-system is also given. In short, the internals of the p-code interpreter are mapped out.

This is an excellent book by an obviously accomplished programmer and I would recommend it to anyone with a desire to really understand the p-system on the Apple.

## Education

by Norah Arnold

### FOUR PRIMARY MATHS PACKAGES

microAddition  
microSubtraction  
microMultiplication  
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Hayden Software

Available from Dark Star

Price £20.95 + VAT each.

These four packages are aimed at children between the ages of four and ten years. They are an aid to learning rather than a sophisticated practice package. One of their main attractions is the graphic scenario associated with each package and aimed to catch the interest of small children.

Each package has four options on its main menu. The first two options teach the values of the numbers one to nine, the third option teaches the child how to add, subtract, multiply or divide, while option four gives a choice of a quiz on what has been learned, or a calculator which gives answers to problems you type in.



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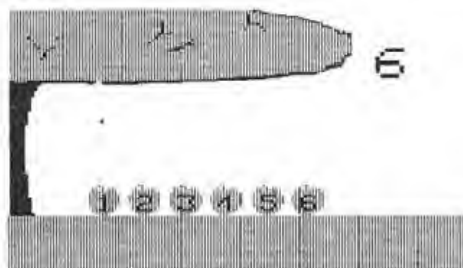
- enquire for keen price.

Contact: Peter Mead

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Welwyn Garden City,  
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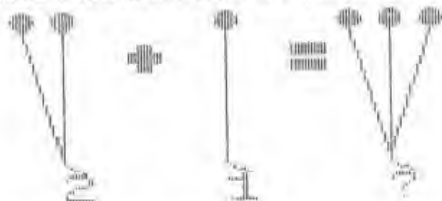
### microAddition

The four options on the main menu are APPLES, NUMBERS, ADDING BALLOONS and ADDING NUMBERS. If you choose the first option you are presented with an apple tree and you are asked to type in the number of apples you want to see fall to the ground. The apples drop one by one, then they are counted as numbers appear in the fallen apples.



If you choose option two the same apple tree appears but apples are already on the ground and you are asked to enter the number of apples shown. If you are correct the apples are counted and a happy tune is played. If you are wrong, a sad tune is played and you are given two more chances to get it right before being shown the correct answer.

Option three gives you ADDING BALLOONS. You are asked whether or not you need help in adding the balloons and if you say yes the screen will appear as below, with the total number of balloons above the question mark.



If you say that you do not need help then no balloons will appear after the equal sign.

Option four, ADDING NUMBERS, gives you the choice of an addition quiz or an addition calculator. If you choose the quiz an addition problem will appear on the screen with the message ENTER ANSWER. The format of the problem is that of a normal addition 'sum'. There were two things which I particularly liked about the quiz. Firstly, the program is fussy, as it should be, about the unit value being entered first. Secondly,

when appropriate a carrying figure is shown on the screen.

The calculator option asks you to enter a number which may be from 0 to 99999, press the space bar, then enter the number you wish to add to the first.

### microSubtraction

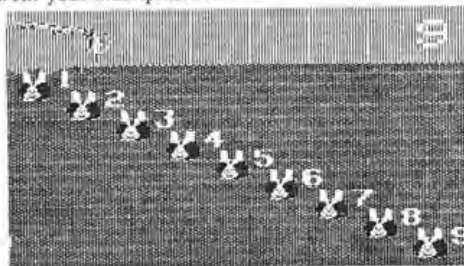
The format of this package is very similar to the previous one. The main menu options are BIRDS, NUMBERS, SUBTRACTING BALLOONS and SUBTRACTING NUMBERS. The BIRDS option gives a screen with another tree and also nine eggs lying on the ground beneath the branch. You are asked how many eggs you wish to see hatch. As the eggs hatch the birds fly up into the tree one by one. When the bird has landed on the tree branch a number appears next to it so that it may be counted.

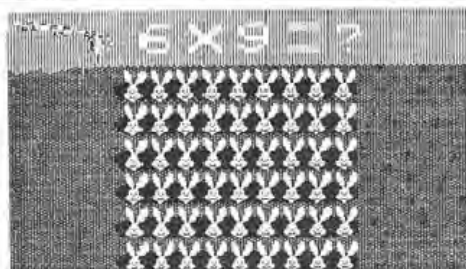


If a young child was working with an adult then the screen presents an opportunity for the adult to point out to the child that five taken from nine leaves four unhatched eggs. The second option gives counting practice by presenting the birds already on the branch for the child to count. The third and fourth options are very much the same as those on the addition pack.

### microMultiplication

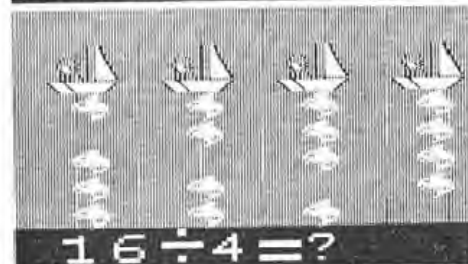
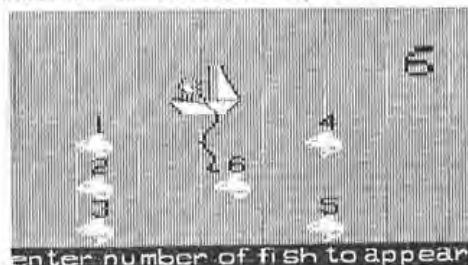
This package is really quite delightful with little white rabbits popping out of burrows all over the place. They not only pop up for you to count but also in groups to help you with your multiplication.





microDivision

Fish appear for you to count and if you need help with division they arrange themselves beneath each boat, demonstrating the ways in which four can be made as they do it.



The four packs are well thought out and would give a child an enjoyable introduction to the four rules of number. When the basic concepts have been mastered the quiz sections give ample practice for young children up to the age of ten. Even the tunes played are not boring as they change all the while, but even so you can use the program without having the sound switched on if you choose.

As the graphics are colourful a colour monitor will obviously display them to advantage but they do come over well in black and white. The little booklets that come in each box have an outline picture on the front, just the kind that children love to colour in. I would certainly use these with my own children if I could put the clock back.

## Local Groups

### Middlesbrough Group.

Dick Pilgrim would like to start a local group in or around the Middlesbrough area. Anyone up there who is interested please contact:

Ed Woodley, Group  
Coordinator  
Middlesbrough  
Cleveland

### Essex Group.

After successfully launching in October 1983 the Group is active and thriving with fortnightly meetings. The default venues are at Colin Poynder's "Tree Top Hotel" in Epping at 8pm on the first Wednesday of the month and, alternatively, every third Wednesday of the month at Havering College of Technology in Hornchurch and at ITEC, Harrow.

It is very easy to generate a discussion in the group on any interesting aspect while there is serious work going on in the background. Subjects for discussion vary. In the past subjects have included networking, modems, graphics and Pascal and the next is "Computer Control of Machines".

Contact: Abe Savant (01 301 3735).

\*\*\*\*\*

### Other addresses:

Herts Group meets at:  
The Old School  
1 Branch Road  
Parkstreet Village  
St. Albans

Hants and Berks Group Meets at:  
Reading University

MID-APPLE, for Birmingham and West Midlands.  
Contacts:  
Bill Watson on (051 221 1111) (051 221 1111)  
or Mel Golder on (051 221 1111) (051 221 1111)

Kent Group is peripatetic.  
Check with Jim Panks on (01822 37 000)  
or with Dougal Hendry on (01822 37 000)

Croydon Group's meeting place:  
The Shirley Poppy  
Wickham Road  
Shirley

# Software Review

Program: RAMDRIVE //e.

Author: Richard Kraemer.

Company: Precision Software.

Distributor: CCS & S.

Price: £29.95.

Description: Disk emulation software for the Apple //e.

Many of you will have seen adverts for moving DOS on to a RAM card so that more space is made available for your programs. A new theme on the old idea now exists for those users of the Apple //e with an extended 80 column card.

RAMDRIVE //e, instead of moving DOS, turns the extra memory into a pseudo disk drive capable of holding up to 49 files. On an extended Apple 80 column board the free space available, once the program has been activated, is 242 sectors or the equivalent of approximately half a floppy disk. On the 128K variation, 496 sectors are free or about the same amount as one complete disk.

The double sided, unprotected, and therefore copyable disk supplied for review came with the DOS 3.3 and the PASCAL versions of the program. CCS & S, who are the sole suppliers of RAMDRIVE, tell us that a CP/M 2.2 version is also available complete with a turnkey facility to provide auto booting of CP/M utilities or programs. This is also priced at £29.95. For the purposes of this review only the DOS 3.3 side of the disk was used but the documentation implies the the PASCAL version is just as easy to use.

On booting the disk the user is greeted with a high resolution picture of a disk drive, a floppy disk and authors credits. Mercifully these quickly disappear and are eventually replaced by a menu giving seven options. The first five supply information about the programs on the disk with the choice of seeing the documentation on the screen or in printed form. Whichever way is chosen to output the instructions both the screen and printed layouts were well presented and easy to follow. The last two options allow the user to copy the RAMDRIVE program to any initialised disk and to exit to Applesoft Basic respectively.

If a printer is available it is strongly recommended that a full printout of the documentation be taken (option 5). While the program is quite straightforward to use, it is very useful to be able to refer to the

instructions in printed form on occasions rather than going to all the bother of looking it up on the screen while in the middle of doing something else with the machine.

Once a copy of the RAMDRIVE program has been safely transferred to a blank, formatted disk it can be called up like any other binary file by typing 'BRUN RAMDRIVE,S6,D1'. This will make the Apple look at slot 3 and expect to find another disk drive there. On typing 'CATALOG' the user is greeted with the words VOLUME 0001 and absolutely nothing else which is quite logical as no files have yet been transferred to the pseudo drive.

Copying files to RAMDRIVE can be done in a number of ways. Depending on what files are to be held in memory the two easiest methods are by using the standard FID program or by running a modified HELLO program. FID, which can be found on the system disk supplied by Apple or available from the BASUG software library, is the most practical way of putting individual programs into the RAMDRIVE when taking them from various disks. If this method is used it must be remembered that the destination is going to be slot 3 drive 1 (or 2) and not slot 6 drive 2 as usual. If it is intended that the same files, utilities for instance, be used regularly then a HELLO program which either lists all the required programs on the disk or calls an EXEC file to do the same job is probably better. An EXEC file called 'COPY ALL FILES' which literally does just that, copies all files from the disk to the RAMDRIVE, is also supplied.

A number of nice touches are built in to the program. When the RAMDRIVE is being accessed an inverse R or W will appear in the lower right hand corner of the screen to indicate that a read or write operation is taking place. Some of the parameters of the program can also be changed easily. One POKE statement for instance, will determine if 80 columns are to be allowed or not. The ability to change the volume number on RAMDRIVE is also possible and another POKE statement controls whether double high resolution graphics, which are available on the //e, can be used.

An important point to note is that all the DOS commands will work correctly so there is no problem using OPEN, CLOSE, READ, WRITE and CHAIN statements. The INIT command will disable the RAMDRIVE but it is quickly put on line again with its files intact by

# FORMAT-80

## FOR THE APPLE ][ AND //e

**Format-80 is simple to use.** Text entry is as easy as using a typewriter. Editing and formatting is achieved with single key strokes. "D" for delete, "I" for insert, "J" for justify, "C" for centre, etc. Easy to remember commands because they make sense.

**What you see is what you get.** Format-80 performs virtually any editing and formatting function you can imagine, and displays on the screen the text exactly as it will print out.

**It supports all Apple compatible printers.**

**Format-80 also includes a sophisticated mailing list**, which comes complete with full sort and selection capabilities. **The program resides entirely in memory**, including the mailing list. All drives are free for text and mailing list data.

**It comes complete** with a tutorial manual and a concise, easy to use reference manual, plus a handy user reference card, and is supplied on a standard DOS disc. The disc is not copy-protected.

**System requirements:**

64K APPLE ][ //e, and most Apple compatible machines.

Disc Drive.

80 Column Card. (supports most 80 column cards)

Also available as an upgrade to existing users of Format-80, including revisions to the reference manual, details of new features, and upgraded software.

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**Upgrade: £25.00**

**Ramview: £80.00**

**ELITE SOFTWARE COMPANY,**

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Tel: 09328 67839

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running the program again. To clear the files from the memory simply run the program while pressing the solid apple key. At one point during testing, the control, reset and open apple keys were used to re-boot the system. Surprisingly the programs being held in memory by RAMDRIVE remained intact.

Included on the disk were two other programs the first of which was SPEEDOS a public domain speed up utility program published by Call-A.P.P.L.E. Instead of overwriting parts of the first three tracks on the disk as many of these programs tend to do, this one, after being run, modifies the operating system within the Apple until such time that the machine is re-booted.

As a test of what RAMDRIVE and SPEEDOS were capable of in terms of speed which, after all is one of the main advantages of using a program of this type, a short BASIC program and six high resolution pictures were loaded in to the memory. The program loaded a picture on to the high resolution screen not being displayed, switched the screen on then commenced loading the next picture, carrying on this way until all six had been loaded and displayed on the screen in turn. This was repeated 100 times to get an accurate timing.

When run conventionally from disk and at

normal speed, the test program takes a magnificent 92 minutes or 9.2 seconds per picture. With the RAMDRIVE and SPEEDOS combination it took only 1.92 minutes or one third of a second per picture which is around 48 times faster. While not animation speeds by any means it certainly was impressive. Incidentally the makers claim is for speed increases up to 40 times faster so unless the drives being used for the test were having problems they appear to be under estimating somewhat.

The second program is an updated version of COPYA, the disk to disk copy utility also found on the system disk. Called RAMCOPY, this program speeds up the transfer of files between disks by using the extra memory on the extended card. This especially holds true for people with only one drive as far fewer disk swaps are needed. RAMCOPY cannot be used to transfer files between a conventional disk drive and RAMDRIVE because it uses all the extra memory while copying.

For a price comparison, Beagle Bros. of San Diego, California who are well known for their cheap but good quality utility software, sell what, at a first glance, appears to be a similar program called DISKQUIK for 29.50 US Dollars. Is RAMDRIVE just a dollar to sterling conversion of a similar program then? Unlikely as no mention

THE FOLLOWING IS THE PROGRAM USED TO TEST THE SPEED OF THE RAMDRIVE AND SPEEDOS COMBINATION.

```

1 HOME
2 HGR
3 HCOLOR = 3
4 DS = CHR$(13) + CHR$(4)
5 PRINT CHR$(7) :
6 FOR A = 1 TO 100
7 PRINT DS;"BLOAD PICTURE 1,A$2000"
8 POKE -16300,0 :
9 PRINT DS;"BLOAD PICTURE 2,A$4000"
10 POKE -16299,0 :
11 POKE -16302,0 :
12 PRINT DS;"BLOAD PICTURE 3,A$2000"
13 POKE -16300,0 :
14 PRINT DS;"BLOAD PICTURE 4,A$4000"
15 POKE -16299,0 :
16 POKE -16302,0 :
17 PRINT DS;"BLOAD PICTURE 5,A$2000"
18 POKE -16300,0 :
19 PRINT DS;"BLOAD PICTURE 6,A$4000"
20 POKE -16299,0 :
21 POKE -16302,0 :
22 NEXT
23 PRINT CHR$(7) :
24 TEXT
25 HOME
26 END

```

```

REM *** RING BELL ***

```

```

REM *** HGR2 TO HGR ***

```

```

REM *** HGR TO HGR2 ***

```

```

REM *** HGR TO FULL SCREEN ***

```

```

REM *** HGR2 TO HGR ***

```

```

REM *** HGR TO HGR2 ***

```

```

REM *** HGR TO FULL SCREEN ***

```

```

REM *** HGR2 TO HGR ***

```

```

REM *** HGR TO HGR2 ***

```

```

REM *** HGR TO FULL SCREEN ***

```

```

REM *** RING BELL ***

```



# NEW DERING 10MByte HARD DISK DRIVE FOR APPLE COMPUTERS

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is made of being able to change DISKQUICK parameters or being able to use a 128K version of the 80 column card. Beyond that, SPEEDOS and RAMCOPY, two very useful utilities plus the PASCAL version of the main program all come as standard on the RAMDRIVE disk.

The only true value that can be put on a program such as RAMDRIVE is to figure out how often it will be used. If you have felt on occasions, the need for a second, third or even fourth drive but have believed it to be financially impractical then this is a good alternative. Using the extended 80 column card in this way cuts out a lot of time normally wasted changing disks and accessing programs and data files not to mention the wear and tear on both the drives and the floppies themselves.

The one thing that RAMDRIVE //e was unable to speed up was the Post Office. According to the date on the covering letter received from the suppliers, the disk was posted to us for review on the 11th of February. In fact it was not received until the end of May. Perhaps we should go back to the days of the old GPO. They did not use computers on the postal side then so things were delivered faster.

Thanks go to Coastal Computing Supplies and Services Ltd. of 16, Malt Kiln Road, Ulverston, Cumbria for supplying the review copy. Suggest you try a carrier pigeon or electronic mail next time, gentlemen.

## Courses

### GETTING MORE FROM YOUR APPLE

#### UNIVERSITY OF SALFORD

Salford University run several courses a year for APPLE users, and other Micros.

Report by Graham Ashdowne.

Each course is run at three levels - Beginners, Applesoft competent and Machine Language. At over £200 for the three days, these courses are expensive for the self-dedicated APPLE user, and as a result, those attending comprise mainly Company sponsored students. I attended the middle course with seven others, which with two lecturers per session in attendance resulted in almost personal guidance and tuition.

On registration, prospective students receive an 154-page book of Course Notes,

(Wordprocessed by Applewriter of course), which in itself has proven to be an excellent reference book, explaining many of the thin areas of Apple's own Tutorial and Programmers Reference Manual. Included in the Course Notes is a disk containing copies (answers on the flip side) of all the demonstrations, and hands-on exercises used in the lectures, demonstrations and tutorials. A great saving in time, and no de-bugging before the program works. In addition is a very useful copy of the LOSTOCK SCREEN EDITOR, with automatic line numbering as an optional enhancement at £5.

As the course developed, students also found that they had the makings of a simple word processor, a shape generator, and many other routines, such as a read or write text file program. Amongst the more useful of the projects demonstrated were in depth studies of other programs available for the APPLE, such as Appleplot, Toolkit and, most important, a de-bugged version of Renumber from the System Master Disk, the facilities of which were very fully demonstrated. It is surprising to find out that one can own a disk, and as time goes by, forget some of the techniques and routines available.

The graphic shortcomings of the Apple were soon appreciated, and the advent of denser pixel definition suggests that we will all seriously consider updating our Apples as technical progress improves this grey area.

Being a support Department of a University, it develops its own interfaces to illustrate various aspects of the educational requirements of the APPLE. It follows that any person with a particular measuring problem is greeted with open arms, especially if that problem generates Boffin Brain interest. So if you have a problem get in contact with Salford University.

One thing was lacking. Nobody, neither lecturer nor student, had heard of BASUG. There must be an opening here to generate interest and to gain further recognition which would enable members to get the same discount on these courses as do Educational Establishments.

I had only one problem. Being some thirty years since I resided in an educational environment, I found the pressure of study and tutorial rather tiring. On the second night, returning to my room after the excellent dinner provided, I went to sleep fully clothed on my bed at 8.30 pm, with the Course Notes clutched to my chest, not to wake until 7 am next morning.

# Multi-Switched Inputs

by Dr. John Marr

The Apple is often required to monitor several circuits simultaneously, looking for a keypress or for a switch to operate, and acting appropriately. Usually this requires inputs to one of the motherboard slots to an interrupt line, and as many wires as there are switches, with appropriate decoding. This simple circuit allows the inputs from up to eight switches to be monitored, using the minimum of components, and only two wires into the Apple II games socket.

The circuit description is best seen with reference to figure 1: each switch completes the games paddle circuit through a resistance to +5V. I have selected the resistances to give the widest range of paddle inputs, while using single preferred value resistors. The two wires should go to pin 1 (+5V) and pin 7 (PDL 2). Paddle 2 was chosen not to conflict with paddles 0 and 1, which are usually wired to the joystick. I have limited the number of switches to eight as the best compromise, as the reproducibility will deteriorate if the resistance values are too close.

The software driver routine was written in Logo (figure 2), but I also include a Basic listing (figure 3) to show how it might be used with that language. In Logo, it is then just a matter of defining procedures to be called for each switch push, as PROC1, PROC2... etc. In Basic, the routines would be written at lines 100,200... etc as defined in the ON GOTO lineum. The square root derivative was again chosen to give a maximum spread of paddle values, with minimum risk of error from variations in component tolerances.

I have used this simple circuitry with complete reliability to monitor a set of switches round the skirt of a simple robot, which is linked to the games port through a single flex; but I am sure it may find other uses where one needs to respond to one of several possible switches with a minimum of external circuitry.

Figure 2.

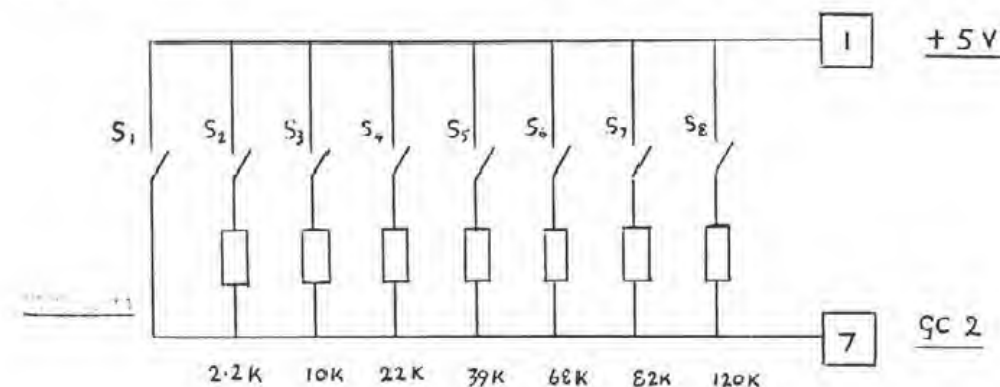
```
TO TEST1
  IF SWITCH.PRESS [PROC.NO]
  TEST1
END
```

```
TO SWITCH.PRESS
  MAKE "PDL PADDLE 2
  IF :PDL < 238 [OUTPUT "TRUE]
  OUTPUT "FALSE
END
```

```
TO PROC.NO
  LOCAL "N
  MAKE "N 1 + INT ((SQRT :PDL)/2 + .5)
  MAKE "N WORD "PROC :N
  RUN LIST :N
END
```

Figure 3.

```
10 REM ** SWITCH TEST **
11 REM ** JOHN MARR **
12 REM ** 8 MAY 1984 **
13:
20 PD = PDL (2)
30 IF PD < 234 GOTO 50
40 GOTO 20
50 N = 1 + INT (SQR (PD) / 2 + 0.5)
60 ON N GOTO 100,200,300,400,500,600,700,800
```



# Beginners' Page

By John Sharp.

## PEEKING AND POKING.

To a beginner Basic is quite a mindful to deal with. It does have some connection with the English language in that commands such as PRINT mean something related to their everyday use. The two commands PEEK and POKE have an aura of mystery about them, however. They are in fact used precisely as their name suggests. PEEK lets you look at something, and POKE lets you push something into a certain location. This word location is the key to what is happening. The computer memory (be it RAM or ROM) is a set of locations like pigeon holes which store numbers, which are processed by the microprocessor (the brain at the heart of any micro) to carry out the instructions you tell it by means of your program. The microprocessor (in the Apple the 6502 chip) runs along these memory locations executing the instructions it sees in each of the pigeon holes. Some of the locations have specific tasks as switches to set various conditions, for example to put you on the graphics instead of the text screens. Others are actual parts of a program.

When you see a POKE, there are always two numbers separated by a comma. POKE 50,255 means put the number 255 into the 50th location in the memory.

If you see POKES in a program it is important to recognize the context in which they are being used, especially if you want to convert programs written for other machines. In general there are two ways you might see one or more POKES in a program line. The first uses Basic to write a machine code routine into memory. This is usually a list of POKES such as:-

```
POKE 768,1: POKE 769,32: POKE 770,221:
POKE 771,221: POKE 772,206: POKE 773,0:
POKE 774,3: POKE 775,248: POKE 776,96
```

and is often CALLED by the program elsewhere. The CALL needs to be followed by a number which tells the computer where to start in memory, and is very much like going to a subroutine, except that it is a machine code subroutine. The number will often be one of the early numbers in the set of POKES. In the case above a CALL 769 will evoke a response; if you want to know what

happens try it and see. A shape table may also be POKED in as a set of numbers in the same way.

The other way you might see a POKE is in isolation. This is more often than not setting a switch. The location 50 can be used on the Apple as a switch to set whether a character that is printed is shown as Normal, Inverse, or Flashing. You can in fact use these words as commands in Applesoft, but not in Integer Basic, so if you wish to use these effects in an Integer Basic program, you have to use POKES to flick the switches. If you put the number 63 into location 50 with a POKE then the characters printed next will be printed Inverse. If you put 127 there they will be printed Flashing. To get back to Normal it is necessary to POKE 255 into location 50. The following short program demonstrates this:-

```
10 POKE 50,255: REM SETS TO NORMAL
20 GOSUB 100
30 POKE 50,63: REM INVERSE
40 GOSUB 100
50 POKE 50,127: REM FLASHING
60 GOSUB 100
70 POKE 50,255: REM SET BACK TO NORMAL
80 END
100 PRINT "THIS IS A STRING"
110 RETURN
```

You might try putting other numbers (up to 255) in this location, to see what happens. There may be a load of rubbish or there may be nothing printed out. Only the three numbers 63, 127 and 255 are predictable. Others will not always flash or come out inverse.

## PROBLEMS WITH OVERWRITING THE HIGH-RES PAGES.

Have you had the end of your program mysteriously disappear when you tried to run it? If it was a very long program, it is quite likely that you cleared or used Hi-res page one. If the program ran into that area of memory then all code you put in to designate your program would have been replaced and so your program disappeared.

Have you ever had a picture on the High Res graphics pages which suddenly developed a lot of unwanted dotted lines such as the example shown? The reason is that the program is using up a large amount of memory either to store itself or for data when it runs. This may be for instance because you are filling up an array in even a small program. As was discussed above the values

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of the numbers in the memory locations can be interpreted in various ways, depending on how the machine is being used. When a number other than zero is loaded into the area reserved for the Hi Res pages and the graphics is being used they are interpreted as plotted points, all of which are visually meaningless. This is why you have to clear the page before using it, since there is often some of this garbage to clear up. How stupid to have the graphics located in the middle of memory, you might say. This is probably true at the moment, since almost everyone has 48k with memory being so cheap, but this wasn't always so. If you only had 16k of memory, at least you could use one page of Hi res graphics. Then as you progressed to 24k, another page became available. These pages were fixed by the need to balance the selling point of graphics with the machine, against the fact that many people could not afford the higher memory. There is a case for revising the ROM to take account of this, but then someone else might lose out.



There is a way to overcome the problem. It requires some POKES to set some switches to tell the Apple to load your program above the Hi Res pages, so that any additions in the way of arrays or variables happen well away from the graphics area. If you are only using HGR and not the second page:-

POKE 103,1  
POKE 104,64  
POKE 16384,0

Now load your program in the normal way from either tape or disk, and it will load where HGR2 normally resides.

IF YOU NOW USE HGR2 YOU WILL DELETE YOUR PROGRAM.

If you wish to be clear of both pages then:-

POKE 103,1  
POKE 104,96  
POKE 24576,0

and now load your program as normal.

The above is not necessary with INTEGER BASIC because the program is loaded from the top of memory down, and so you would need a rather large program to encounter any trouble.

## Small Ads

Integer Card - gives Integer Basic and old monitor on Apple II+. Does not work on //e. £23.  
Ring Fran Teo on Bracknell 01494 443311/112.

\*\*\*\*\*

Wanted: Copy of 80 column WORDSTAR including manual. Write stating price to: Mr. T. L. Beckham

100 Elmsfield Road

Chesham, Bucks.

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\*\*\*\*\*

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64k ITT 2020, 1 ITT disk drive & controller, internal TV colour modulator, 'Snapshot II' program copier, internal fitted fan (can be removed), external games ZIF socket, games paddles and Apple Joystick II. All for £500.

Contact Dave Miller 01494 443311 (evenings after 6pm).

\*\*\*\*\*

I have a new crop of Apple books which might interest members. Original price in brackets, price then follows.

Poole et al., Some Common Basic Programs.

Apple II edn. (£13.95) £5.

Berlin, Circuit Design Programs for the Apple II. (£13.55) £5.

Jones, I speak Basic to my Apple. Teachers manual. (£16.20) £5.

Haskell, Apple Basic. (£11.00) £4.

plus quite a lot of others. Write for a list, or ring me on 01494 443311.

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0494 2111

3436

01494 443311



# Prestel Software for the Apple

by Tony Game

BASUG is getting in on the communications bandwagon with a vengeance now, after what seemed to many of us to be a long period of indifference. The bulletin board is in full swing and improving all the time in Quentin Reidford's capable hands, and now there is this new addition to the Special Release Software.

There is no doubt that it is an addition well up to the very high standards that have already been set, and indeed one must say that this Special Release Software now justifies the subscription for a new member without any other considerations. Ewen Wannop has produced a package which is a subset of his full Prestel software that represents very remarkable value.

He has taken the initial decision which I think a sensible one, to ignore the colour of Prestel. This may sound a very drastic step, but in fact it has many advantages which quickly become evident. The first is the supreme legibility of the text. As one who deplores the multi-coloured text of the graphics screens on colour monitors, I rejoice in the perfect ease with which the text can be read, thinking this after all to be the main purpose of comms, nice though pretty graphics may be. This is not to say that the Prestel graphics have been neglected however. Far from it. In fact very clever use of inverse and screen switching have given a splendid monochrome display with full flashing characters and cursor where these are required. The inverse produces a very good second best to colour. There is the extra advantage that the pages can be printed out just as they are seen.

On booting the disk one is presented with the option of installing one's set up. At the moment only the Super Serial card and the Sercom card are supported, but Ewen is working on a new system which will allow almost any serial card to be supported, and it is hoped that this will be available in the future. Naturally one also requires a modem that supports 1200-75, and I have used the package with the Super Serial card and the Minor Miracles modem. Having chosen the serial card one then has the option to enter one's identity number and personal pass code. Yes the program does send these automatically avoiding the task of entering

some dozen obscure numbers on each entry. Now one is allowed to enter the program proper and sees a display as follows:-

```
1 FRAME SAVE TO DISK
2 FRAME LOAD FROM DISK
3 DUMP FRAME TO PRINTER
4 RESTART PROGRAM
5 EXIT TO BASIC
6 SIGN OFF FROM PRESTEL
7 CATALOG THE DISK
8 TOGGLE DRIVE.. NOW D,I
```

0 START TELESOFTWARE DOWNLOAD

ANY OTHER KEY TO RETURN

These represent one's options from within Prestel, and this menu may be displayed and used at any time by typing Escape. After studying this menu for a while, one can go back to the initial title page and phone Prestel. After having been signed on one can use the pages by entering '\* PAGE NUMBER #'. The \* does not have to be shifted, and return enters the hash. Saving a frame to disk is very easily implemented both from the menu, and by pressing / from the pages themselves without going to the menu, and this is one of the great delights of the program as one can save a sequence of frames and then dial off, before recalling the frames to be studied at leisure and at nil expense! The software download is a very easy method of downloading the various software that is available on Prestel frames, and works impeccably.

Full instructions are provided in an Applewriter II text file on the disk, and a program is provided to display or print these if AW II is not available. There are also a couple of programs to help with some of the rogue Prestel downloaded software that needs special treatment to make it work. Altogether a simple and elegant package, and as I have said a great bargain at the price.

I mentioned before that the BASUG version is in fact a subset of Ewen's full Prestel access package, and while it contains the essential meat of this, the real thing has very many delightful extra touches which make it a joy to use. In this full version there are two menus after the same setup procedures have been used. These are as follows:-

- 1 MICRONET MAIN PAGES
- 2 APPLE MAIN PAGES
- 3 SEE A MESSAGE
- 4 PRESTEL INDEX
- 5 VIEWFAX
- 6 UPDATE PRESENT PAGE
- 7 TOGGLE REVEAL/CONCEAL
- 8 RESTART PROGRAM
- 9 LEAVE PRESTEL

D START TELESOFTWARE DOWNLOAD

<SP> GOES TO SECOND MENU

<?> = HELP

ANY OTHER KEY TO RETURN.....

- A SAVE FRAME TO DISK
- B LOAD FRAME TO DISK
- C SEND FILE FROM DISK
- D SEND FRAME TO PRINTER
- E DISPLAY PAGE ROUTE
- F EDIT A MESSAGE FRAME
- G TOGGLE DRIVE.. NOW D,I
- H BACKGROUND OPTION .ON
- I EXIT TO BASIC

K CATALOG THE DISK

<SP> RETURNS TO MAIN MENU

RESET RECOVERS FROM LOCK-UP

ANY OTHER KEY TO RETURN

Here the first 6 options of menu one allow one to select 6 frames to be called automatically. These frames may be changed to suit one's own preferences, and in fact I have changed some of them. The second menu gives the wonderfully useful facility of writing one or more message frames before dialling Prestel, and then sending these automatically. Enterprise is a distance call for me, and this ability makes the sending of a message much cheaper not to mention easier. When the mailbox facility is extended to all computers - promised for the summer - one will be able to send half a dozen messages for 3p!

Any new user of Prestel is inevitably going to be confused at first by the infernal nest of menu after menu that he will be presented with, and in fact unless one writes down the number - often long - of each page, it can easily be lost never to be found again. Even has neatly overcome this problem by allowing one to flag a page with CNTR Z. After this CNTR S will exhibit the flagged pages with a

single number before each. Now the entry of the single number will recall the page. This facility quickly becomes indispensable. Additionally option E from menu two will bring up a display of the last 30 pages that one has accessed and these can be called again by the conventional use of the full page number. This display is especially useful for very complex routes to a page, because there is also a facility to write and use a macro to automatically work through a lengthy route. This macro is written by another program on the disk and called up from within the program by CNTR B which requests a name and then loads and operates the Macro. This is especially useful for using gateways. The macro can be written just as easily to access a single page, so if one has used up the six optional pages from menu one, and uses a page with a complex number often, one could use the option for this. I am abashed to admit that I often call up my horoscope which is a 3 page route to obtain Gemini, and have a macro for this inglorious purpose! If one does not care for the inverse graphics display H from menu 2 will toggle this off.

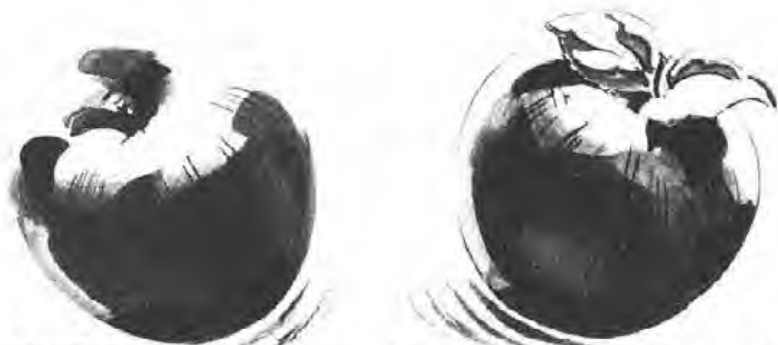
It is impossible to convey the true feel of a piece of software by a mere description of its options, and even this description has had to be kept short by considerations of space, but this is one of those rare packages that, as well as conveying the sense of great power, also give one a feeling of confidence in one's ability to use the power. Is this the famous user friendliness? For anyone wishing to sample Prestel, the Special Edition contains all that is needed and is an excellent buy. The full package is simply a superb piece of software that does all one could possibly wish for, and is very sensibly priced into the bargain. I unreservedly recommend them both.

## Small Ad

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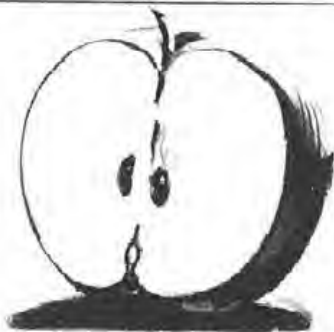
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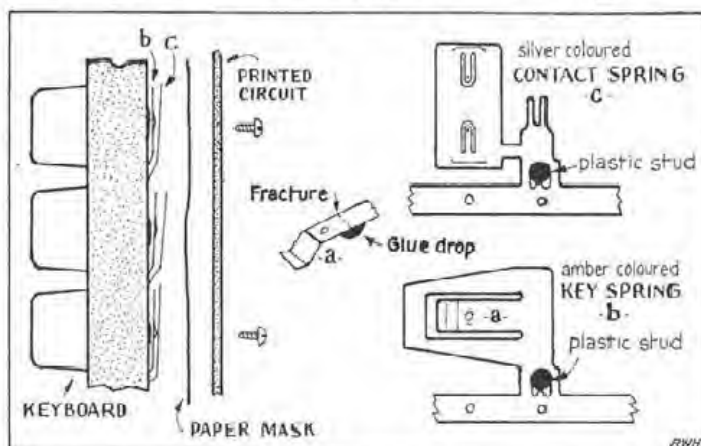
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Ipswich IP1 5NP Tel: 0475 462721.

# Repairing a Faulty II+ Keyboard



By Roger Harris

Nine months ago, whilst punching in a lengthy data table, one of the keys on my II+ keyboard failed. It was the <2> and would return only a <1>. I suspected that either the electrical contacts were dirty or that part of the mechanism had failed through fatigue. The worst possible outcome would have been the delay and expense of buying a new unit. An attempt at repair bore the caveat that if I wrecked the unit, I would need to buy a new one anyway.

On opening the keyboard, I found that one of the leaf springs behind the <2> key had indeed fractured. Solder would not take to the metal so I decided to use a glue which had mechanical strength when set. I used a hot-melt glue gun, but Araldite would have worked too. A word of caution: the leaf springs are fragile and intricate so take care handling them. Your own keyboard may fail for reasons other than metal fatigue.

## TOOLS:

- 1) Two Phillips screwdrivers; one large blunt tip, one small sharp tip.
- 2) One scalpel.
- 3) Glue.

## DIS-ASSEMBLY:

- 1) Disconnect the mains power cable and remove any cards.
- 2) Invert the case.
- 3) Remove 10 screws holding baseboard to case.

4) The baseboard is connected to the case via a ribbon cable so remove baseboard very carefully.

5) Unplug keyboard ribbon cable.

6) Remove 4 screws holding keyboard to case.

7) Remove printed circuit board from keyboard: loosen two plastic clips and slide off from 25 pin connector.

8) Remove 15 screws from the keyboard which can now be opened.

The leaf springs are linked into groups of one, two and ten springs and each group fits tightly over several plastic studs. Use the scalpel to prise the faulty group off the studs. I applied a small drop of glue to the fractured, but not broken, spring as shown in the drawing. The glue drop acts simply as a kind of splint.

## RE-ASSEMBLY:

When re-assembling the keyboard it helps to attach the paper mask to the printed circuit with a few pieces of adhesive tape to ensure alignment.

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# Printer Glossary

- (1) Printer Interfaces - Hardcore April '84.
- (2) Dot Matrix Printers - Hardcore April '84.
- (3) Daisy Wheel Printers - Hardcore June '84.

**ASCII** American Standard Code for Information Interchange. International standard for allocating letters to the numbers that computers understand e.g. A=65, B=66, C=67 etc.

**BAUD RATE** Speed of serial transmission. 1 Baud = 1 bit per second. Divide by 10 to get approx. no. of characters per second. (1).

**BELL** Character that sounds an audible bell or bleeper on the printer. ASCII code is 9.

**BI-DIRECTIONAL** In this mode, a printer will print one line from left to right, the next from right to left etc. Speeds up the printing process.

**BIT IMAGE GRAPHICS** Type of printing on a dot matrix printer where the pattern in binary of characters sent to the printer is echoed by the pins on the printhead i.e. A = 65 = 01000001 = diagram. This is how screen dumps are done.

**BLOCK GRAPHICS** Type of printing where alpha numeric characters are replaced by graphic characters. These allow printing of graphics in the same way as text.

**BOLD** Heavier printing used to emphasise a word or phrase. Can mean double-strike (on a daisy wheel printer) or emphasised (on a dot matrix). **BOLD. Standard Emphasized**

**BY-PASS** Routine used to send data directly to the printer without it being intercepted by the software on the printer card. For example most printer cards expect control 1 (ASCII 9) to be followed by an instruction for the card. If you want to send this value as part of some bit-image graphics, a by-pass routine has to be used.

**CENTRONICS** American printer manufacturer who developed parallel interfaces for printers for micros. The term is often used to describe the standard parallel printer interface. **BEWARE**, like RS232, the Centronics interface has a multitude of options, not all of which are usually available. So, while the micro should be able to send data to the printer, it will not always be certain that error conditions on the printer (out of paper, etc.) will be signalled to the computer. (1).

**COLUMN** Distance across the paper, normally taken as 10ths of an inch i.e. an 80 column printer would have an 8" width for printing.

**CONDENSED** Smaller characters on a dot matrix printer. The characters are compressed horizontally e.g. **Standard Condensed**

**CONTROL CODES** Control codes are characters sent to the printer which are not themselves printed, but control some function on the printer e.g. form feed (ASCII code 12); ASCII codes 0-31 are control codes.

**CPI** Characters Per Inch eg 10, 12, 15.6 etc.

**CPS** Characters per second. The maximum speed that the printer can produce characters. Part of the speed specification (but not the whole story see Logic Seeking, Bi-directional, Slew Rate etc).

**CR** Carriage Return (Control code, ASCII 13).

**CURRENT LOOP** Form of serial interface used where interference is a problem. See TTY.

**DAISYWHEEL** Type of impact printer similar to typewriter (2).

**DENSITY** On a dot matrix printer, the maximum number of dots that can be printed per unit of area. A range from 3600 (60\*60) up to 20736 (144\*144) is easily available. Some printers can offer only different densities horizontally e.g. single = 60\*60, double = 120\*60, quad = 240\*60. This means that pictures printed in double or quad density will have their shape changed.

**DESCENDERS** The portion of a character 'below the line'. Many early printers did not have 'true descenders', but shifted the whole character up to get the descender in.

key just **Apple graphics**

**DMP** Dot matrix printer, in particular Apple's own.

**DOUBLESTRIKE** Form of Bold printing where each impact, either of dot matrix or daisy wheel is repeated. The print head does not move between strikes. **Standard Double Strike**

**DOWNLOADABLE CHARACTER SET** Ability of the printer to have different typestyle designs sent down from the host computer. Applicable to matrix printers only.

**DTR** Data Terminal Ready. Form of RS232 Hardware handshake (1).

**DUAL PASS** Form of printing where the print head passes over the same area twice. If this is done without any line feed, the effect is emboldening (try Wordstar). Also used with a slight vertical offset to improve quality of printing on Dot Matrix printers. The second pass 'fills in the gaps'. (2).

**ELITE** Printers term. Typestyle with 12 characters per inch.



**EMPHASISED** Form of emboldening on dot matrix printers. Each character is printed twice with a slight horizontal offset. Like double strike with a small head movement between strikes. Equivalent to Shadow on a daisy wheel printer. Standard **Emphasized**

**ENLARGED** Type of wide font on dot matrix printers formed by doubling up each strike. Normally 5 characters per inch.

Standard **Enlarged**

**ESCAPE** Control code (ASCII 27) used as a 'lead in' character for printer control sequences. Interpreted by most printers as 'what follows is not for printing, but is an instruction on how to print' e.g. on an Epson ESC "E" means 'switch to emphasised print'.

**ETX/ACK** Software handshaking control codes on RS232 interfaces (1).

**FONT** Style of typeface.

**FORM FEED** Instruction to printer (ASCII code 11) to do enough line feeds to bring the next sheet of continuous paper to a position ready for printing, or to eject a single sheet. This is usually quicker than issuing the separate line feeds, but is not implemented on all printers.

**FRICTION FEED** Type of paper feed where single sheets of paper without sprockets (such as headed notepaper) can be passed through the machine.

**HANDSHAKING** The part of the communication between computer and printer that ensures that data is not sent if the recipient is not ready. (1).

**HEX DUMP** Mode available on some printers in which the printer does not try to react to the data sent to it, but prints out the values of the characters received in hexadecimal form. Also available on one or two printer cards. Absolutely marvellous when debugging any program which involves programming the printer.

**HMI** Horizontal Motion Index.

**HOME HEAD** Instruction on some printers to bring the head accurately back to its home position. This is vital where overprinting and accurate registration is important.

**HORIZONTAL MOTION INDEX** The distance, (usually in 1/120ths of an inch) on a daisy wheel printer that the head moves after printing a character. Can be used to vary spacing i.e. 11 cpi, 9 cpi etc. Also allows proportional letter spacing (3).

**INTERFACING** Means by which printer and computer communicate data.

**JUSTIFY** The way that text is lined up. Left and right justification force the text against the relevant margin. Centre justification puts the text centrally between the margins, and fill justification

inserts extra spaces so that both left and right margins line up. Hardcore is usually fill-justified.

**LETTER QUALITY** Term originally meaning daisy wheel quality, or an equivalent to type written text. More recently used to describe superior dot matrix styles.

**LF** See **LINE FEED**.

**LINE FEED** Amount by which paper is advanced between successive lines. Can often be set by software, standard is 1/6th inch per line. ASCII code 10.

**LINE SPACING** see line feed.

**LOGIC SEEKING** Facility in some printers to look ahead in the print buffer to minimise print head movement. These printers often speed up where there are a number of spaces or tabs.

**LQ** see Letter Quality.

**LQP** Letter Quality Printer, in particular Apple's own modified Qume printer.

**MATRIX** Pattern of dots on row and column grid used to define characters. (2).

**MONOSPACE** Type of printing where each letter occupies the same space, typically 10, 12 or 15 characters per inch. (3).

**MSB** Most Significant Bit. ASCII defines only 128 characters, a 7 Bit word. Some early printer cards will only send 7 Bit words. Some later printers use 8 pin Bit Image printing, and therefore need cards where the most significant bit (Bit 7, the eighth) can be sent.

**MULTISTRIKE RIBBON** Type of ribbon offering a compromise between ultimate quality and economy (3).

**NEAR LETTER QUALITY** Term used to describe superior Dot matrix capabilities.

**NLQ** See Near Letter Quality.

**NON-PRINTING CHARACTER** Character which when sent to the printer produces no print. (ASCII codes 0-31).

**NULL** ASCII code 0. Often used by printers to signal an off switch. Not available from Applewriter //e, (except with Leicester Computer Centre Blackboard card) so not all printer facilities usable.

**ON-LINE** Condition of printer when ready to receive data from the host computer. Can sometimes be forced from hardware.

**PAGE FORMAT** Usually means the length of each sheet of paper to be printed. Standard is 11' (66 Lines). If a length other than 11' is to be used, printer usually needs to be reset if form feeds are to be accurate.

**PAPER OUT** Signal allowable under Centronics standard to indicate that the printer has run out of paper. This facility can usually be disabled on the printer by switching or software.

**PARALLEL** Type of interface where all bits of data byte are sent simultaneously. (1).

**PARITY** Part of RS232 specification used to check for errors in transmission. (1).

**PERFORATION SKIP** Facility on some printers to force a gap in the printing when the bottom of the paper is near. Typically a 1" gap.

**PICA** Type size of 10 characters per inch. Default setting on most printers.

**PINFEED** Type of paper feed using sprocketed paper, with the pins at the end of the paper roll. Limited adjustment only.

**PITCH** Number of characters per inch.

**PROGRAMMABLE CHARACTER SET** See Downloadable Character Set.

**PROPORTIONAL SPACING** Type of printing where each character takes up a different amount of space according to its width (3).

**RE-INKING RIBBON** Type of ribbon where, for economy, the ink on the ribbon is replenished from a reservoir in the cartridge.

**RESET** Forcing the printer to set itself to its power on status. Can be done from hardware or often from software. If DIP switches are set on a printer, the new settings do not usually come into effect until the switches are re-read during a reset.

**RETURN** or Carriage return. Control code (ASCII 13) to move the printer head back to its leftmost position.

**REVERSE FEED** The ability of the printer to feed the paper backwards. Useful for 2 column printing and for mixing text and graphics.

**RS232C** Standard for Serial communication: Beware, RS232 is a wide specification, and different printers and interfaces may use different parts. Do not assume that 2 RS232 devices can automatically be connected to each other and work straight away.

**SELECT** See ON LINE.

**SELF TEST** Function on some printers that tests the functioning of the printer without needing to be connected to a computer.

**SERIAL** Type of interface where bits of data are sent sequentially (1).

**SHADOW** Type of Bold printing on Daisywheel printers where each character is printed twice with a slight offset to give a Highlight effect. **NORMAL SHADOW**

**SHEET FEEDER** Mechanism to automatically feed a new sheet of paper when a Form feed character is received from the printer, or a page is full.

**SINGLE STRIKE** Type of carbon ribbon giving best possible quality. (3).

**SLEW RATE** Speed that the print head (horizontal slew)/paper feed (vertical slew) can move when not printing. Affects, with cps, the actual speed of printing.

**START BIT** Part of RS232 specification. (1).

**STOP BIT** Part of RS232 specification. (1).

**SUBSCRIPT** Use of character as in  $H_2SO_4$ . Obtained by half line feeds on Daisywheels, by using a small character set on better dot matrix printers.  $H_2SO_4$

**SUPERSCRIPT** Similar to Subscript.  $X^2 + Y^2 = Z^2$   $X^2 + Y^2 = Z^2$

**TAB** Control Code (ASCII 9) used to move to a preset position in the line. Also Vertical Tab (ASCII 11) to move down the page. Tabs can be either Absolute (e.g. move to column 10) or relative (move 8 spaces from here) depending on the printer.

**TOF** Top Of Form. Position to which Form feed will advance paper.

**TRACTOR FEED** Type of paper feed used for sprocketed paper where accurate and fast paper feed is needed. Usually adjustable for different widths of paper and labels etc.

**TRANSPARENT MODE** Mode available on some printer cards to allow a predefined number of characters to the printer without any attempt at interpretation by the software in the card. See BY-PASS.

**TTY** Teletype. Early form of computer printer/terminal. A little like a Telex machine. Often Upper Case only.

**TWO BIN FEEDER** Type of Sheet Feeder with two hoppers. Allows the use of headed notepaper and plain paper or envelopes.

**UNDERLINE** Underlines can be achieved either by backspacing after the letter to be underlined, and printing the underline character, or on matrix printers by underlining 'as you go'. This is quicker and gives a more even line.

**UNIDIRECTIONAL** Type of printing where each line is printed from left to right or vice versa. Useful in graphic printing where very accurate registration is needed.

**V24** Subset of RS232 (1).

**VERTICAL MOTION INDEX** Amount on a daisywheel printer that paper is advanced on the receipt of a line feed command.

**VERTICAL FORMAT UNIT** Complex vertical and horizontal tabbing system available on some printers. (Complex means I don't understand it. Anyone like to explain?).

**WORD LENGTH** Number of bits in a character (1).

**XON/XOFF** Software protocol for RS232 interface.

# Readers' Letters

Prescot, Merseyside.

Dear B.A.S.U.G.,

A short note to follow on from John Sharp's fixes in vol. 3 no. 4 to get the Epson cards to work with CP/M version 2.23 - the '60k' version.

I find it a bore to have to use DDT every time I want to use my Epson printer with CP/M, so for those people with the excellent 'Bag of Tricks' - or some other disk editor - who may like to make the patch permanent:-

Size Track/Sector Offset Old value New value

44k	2,4	\$50	5F	52
60k	2,A	\$59	68	5B

Your control-Ps should now do what is expected of them.....

Best wishes,

Pete Kemp.

Port Talbot, West Glam.

Dear Madam,

I would like to know how young one may be to become a computer "buff". The other day I caught my eleven month old daughter "reading" my copy of Hardcore and, apparently, thoroughly enjoying it. No doubt she takes after her father!

Can anyone help me? Is it possible to include graphics with an Applewriter program? I wish to include a logo as a header on letters when using fanfold paper for formletters. The printer is an Epson RX80F/T.

Yours sincerely,

Revd. William G. Rees.

Dewsbury, West Yorkshire.

Dear Editor,

Does anybody use dBase II on an Apple //e? I

would like to know the hardware configuration and any possible limitations. I can be contacted at:

100 Thompson Road  
 Birmingham  
 West Midlands  
 B15 2PE

Tel: 0526 46762-84

Yours sincerely,

Robert Davison,

Handsworth Wood, Birmingham.

Dear Sir,

In the June issue you have a letter from P. J. Baron which mentions a BBC-Apple link. I too have established a link and will be willing to get some sort of file transfer system running. The problem which he mentions specifically is due to the Apple setting bit 7 of each byte and the BBC taking the bytes as Teletext control codes. If he has a standard Apple Comms. Card (110/300 baud) he should have no problems. I hope to be able to get transfers at 4800 baud (using the :I rate selector on the ACIA on the comms. card).

Yours faithfully,

Andrew L. Jackson.

Waterford, Eire.

Friends,

In reply to Dr. P. J. Baron's letter, I have used the RS423 on the BBC with the Apple Super Serial Card to get BBC programs listed on the Silentype printer. I had some problems with handshaking (largely lack of time) and compromised by using Forth on the Apple to store the data in memory (Applesoft had garbage collection problems) and print it later. That required a 3-wire link.

Dr. Baron's problem is one of ASCII code incompatibility. For normal screen display the Apple uses ASCII codes with parity high - MARK (bit 7 set) - while the BBC uses ASCII with parity low - SPACE (bit 7 reset)!

The SSC allows five options for parity: none (8-bit ASCII+), odd, even, MARK and SPACE. If the communications card offers this choice, select SPACE.

Alternatively, use a short machine-code pre-processor on the Apple:

```
AND #$7F      JMP $xyyy
```

where \$xyyy is the address found in \$36,37 : yy xx after doing :PR#n :IN#0 and doing any necessary initialisation.

Alternatively, use a s.m.c.p.p. on the BBC:

```
L% = !&210 : P% = anywhere convenient : [ : .newbit  
hexadecimal
```

```
JSR L% : AND #$7F : RTS : ] : !&210 = (L%  
AND &FFFF0000) OR newbit.
```

Alternatively, use a mode other than 7. The \$8D which is Apple's CR is the teletext code for double-height characters; in any other mode it is a user-defined character, normally a blank space unless you do anything about it. That will give only passable results.

Yours,

Hugh Dobbs.

Sevenoaks, Kent.

Dear Persons,

#### BASUG & BASICODE.

Re Dr. Baron's letter; while I owned a BBC Micro I became one of the team at Croydon Micro Club assisting with Basicode assimilation. That came to a rapid halt when I sold all my BBC gear. However, while waiting for my 'Mac' to be delivered, I have been wondering what the chances are of using cassettes with Mac. When I receive the "Inside MAC" manual, I hope to make some sense of the RS423/422 ports. Will it be possible to make the op. system "see" an input, or give an output from/to cassette?

Like Dr. Baron, I would like to see an article on the subject - I can still borrow a beeb as necessary to do Mac/Beeb tests if I can assist.

Yours sincerely,

P. Knight.

St. Albans, Herts.

Dear Editor,

There is an error in the Renumber Program on the Apple System Master disk. If a '\*' is encountered in a program, any number following it is sometimes changed to another number which may equal the line number.

To correct this error, follow the steps below:-

1. LOAD RENUMBER.
2. Enter the monitor (Call -151).
3. Type in 12B6:B0 AC C4 BC <<CR>>.
4. Get back to Applesoft (3D0G or CTRL-C).
5. SAVE RENUMBER.

Note: As the System Master disk is write-protected, you will have to save Renumber on a different disk.

Yours sincerely,

Jason W. Smith.

Finchley, London N3.

Dear Yvette,

I have a warning for all those who have an ITT 2020 and an Epson printer.

If anyone is contemplating buying a printer buffer for their printer then they should be very careful. I bought a Wizard EBI internal buffer for my Epson MX-80 F/T III and found that characters were lost when printed. I sent the printer and the buffer back to their respective suppliers and both could find nothing wrong.

It turned out that my ITT is incompatible with this buffer: I suspect that the ITT's slower clock frequency than the Apple's might be the cause. The only cure was to buy an Apple //e which I was lucky enough to be able to do and now everything works OK.

So be warned!! Yours,

Dave Miller.

Prescot, Merseyside.

Dear BASUG,

I wonder if anyone can help a blind

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colleague who is looking for an output device to attach to his micro to allow him to "read" the screen.

There are several phoneme generators available at about £40 or so - U-Micros do one for instance, but there are three major drawbacks:-

1) Physically connecting it to the machine such that it intercepts (?) all data going to the screen and converts it to "speech" which can be understood. Spelling the text out letter by letter is O.K. but maybe there's a better solution? (And what on earth can one do with columns of figures .....?)

2) Buffering the output so that the system doesn't run ahead of the user's ability to assimilate the data being presented - and would there be the facility to 'backtrack' in order to re-read something?

3) Cost.

I'm sure this is something that other people have come across before and managed to overcome. Anyone got any ideas? All replies would be most gratefully received.

Best wishes,

Pete Kemp

London N7.

Dear Editor,

I've owned an Apple //e for a few months and only one major problem has cropped up. I've bought a few programs, games and business, which continually access a disk and will eventually have the disk down. The problem is that most of the programs are protected so that copies can't be made. I would be grateful if someone could recommend a piece of hardware or software which would help me with this since most software is fairly expensive. I've seen a couple of things which claim to copy any program i.e. CIA (reviewed in Hardcore) and Wildcard Plus. I'm sure many users must have this problem so maybe you could do a comparison of such items in the magazine!

While I've put pen to paper might I also make a suggestion regarding software. There are a lot of games on the market for the Apple, most with a vivid name. Like me, most

people buy a game on its name alone since no information about the actual game is provided. My suggestion is: a page or two in Hardcore should be used to print short descriptions and personal opinions of games sent in by users about their software. Many people must have paid a lot of hard-earned money on a game to find that it isn't as described on the box. So how about it?

Another problem I have is with an adventure called Ultima III. When I give 600 GPs to the Oracle in Lord British's castle, half of the clue scrolls off the screen so I can't read it. I was wondering if anyone has got the clue and could tell me what it is.

Yours sincerely,

Manish Patel.

Balham, London SW12.

Dear Ms. Raikes,

Looking through some magazines and books for routines to access a DOS catalog, I came across John Sharp's 'Catalog Label Printer' in the February 1982 issue of Hardcore and Quentin Reidford's amended version in the June 1982 issue. On initial inspection, it looked as if it could be useful and so I tried to implement it. Before I abandoned the idea in favour of writing my own (re-inventing the wheel?), I found some errors in the logic. The problems are:

(1) The program fails if (heaven forbid) there are 105 files on the disk. N starts at 1 and line 690 would eventually attempt to print NAME\$(106).

(2) Line 480 should give leading zero(s) only if LGTH is less than 100.

(3) According to 'Beneath Apple DOS', p 4-6, an unused track is marked by a zero in the first byte of the file descriptive entry. I think this should be done immediately after (or before) testing for a deleted file rather than in line 540, though the latter appears to work.

(4) Testing for two consecutive \$A0 is not a valid way of determining the end of a file name as \$A0 is used for spaces embedded in the file name and any number of these are allowed. In fact, there appears to be no valid way of determining the end of a file name (apart from its maximum length).



(5) There are only 30 characters in a file name, not 31 as implied in line 100.

(6) Line 460 perpetuates the failing of CATALOG in printing only the value of the LO byte.

Some of these problems indicate inadequate testing which seems inexcusable in a published program.

In addition:

(1) If John Sharp is concerned about memory usage, why read all 15 sectors into separate areas of memory (particularly when, in my experience, the average disk has only 20-30 files anyway). Memory can be saved (and the logic simplified) by reading a catalog sector and decoding it before reading the next. This approach requires only one 256 byte buffer rather than fifteen.

(2) In trying to modify the program to meet my own needs, I found that RWTS was being clobbered if starting at address 8192. A higher address would reduce this vulnerability (and an easily relocatable RWTS would be even better). I suspect that John Sharp's program would encounter the same problem if the catalog contained a large number of entries with long names as NAMES( ) could occupy over 3k bytes.

(3) The tabbing in line 690 does not work as expected with a Centronics 737 printer. Using SPC may be a better general solution (and works on the Centronics 737).

(4) It assumes the VTOC and catalog sectors all occupy their standard places on disk though the accompanying description does not make this clear.

I hope you will be able to pass these comments on to the authors as I found their efforts stimulated my own design.

Yours sincerely,

Maurice Farlie.

Swansea.

I want to say to BASUG:

Apple //c is quite popular even in the UK. But

Apple UK's information services are quite bad. Even the ProDOS reference manual is out of stock. And you know, NO UK Apple engineers know how to manage ProDOS, particularly changing the format. Sometimes I have trouble changing the format. Especially the programs written in machine code are difficult. I think Apple must say //c is not compatible with //e. Anyway, all the //c users are waiting for the explanation of these points.

Please, about "Apple Cave", what is different between //c and //e?

Thank you very much for considering this.

Taku Murakami.

P.S. Even with your Introduction to BASUG disk it is difficult to change the format and Invader will not run.

Bracknell, Berks.

Dear Yvette,

Recently, I was chatting to a rather senior member of the technical staff of a major magnetic media manufacturer and I asked him about "flippies". He pointed out that, in fact, 8 inch flippies had been around for years and he told me that there was no reason why 5.25" double sided disks shouldn't be used in a single head drive, using either side by turning them over - assuming of course that the index hole isn't needed. Apparently, the doubts about the disk rotating "backwards" when turned over are needless. So there you are, fellow Applers, straight from the horse's mouth, as it were; FLIPPIES ARE LEGITIMATE! ..... now how about BASUG stocking double sided disks?

A word of warning, however, - single sided disks are frequently double sided rejects, so using the flip side can be risky. It's better to use proper double sided disks.

Yours sincerely,

Bob Mould.

# DIARY

## August

7th Herts Group - Games evening, bring along your best new games and a machine too if you possibly can. 8pm.

## September

4th Herts Group. 8pm.  
 5th Essex Group. 8pm.  
 10th Hants & Berks Group.  
 14th Mid-Apple. 8pm.  
 17th Croydon Group - First line maintenance of Apple systems. 7pm.  
 19th Essex Group. 8pm.  
 19th - 23rd PCW Show at Olympia, London.

## October

2nd Herts Group. 8pm.  
 3rd Essex Group. 8pm.  
 8th Hants & Berks Group.  
 12th Mid-Apple. 8pm.  
 15th Croydon Group - Music on Apples, e.g. Zapple. 7pm.  
 17th Essex Group. 8pm.

## November

19th Croydon Group - Word Processing packages compared. 7pm.  
 22nd - 24th Northern Computer Fair, Manchester.

## December

17th Croydon Group - Adventure Games: Philosophy of design. 7pm.

If you would like your events in the diary, please write in and tell us about them.

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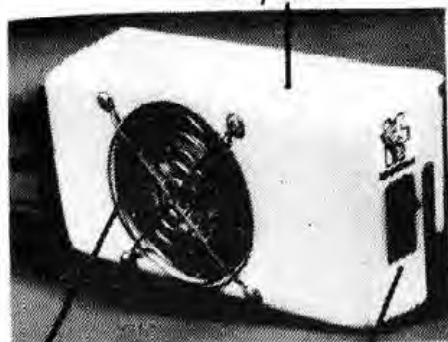
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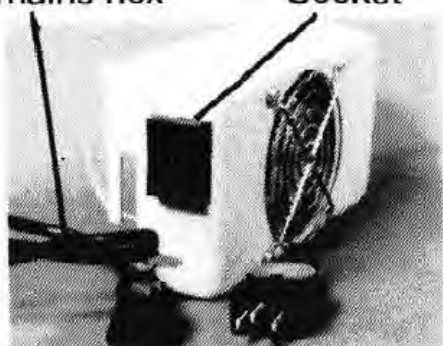
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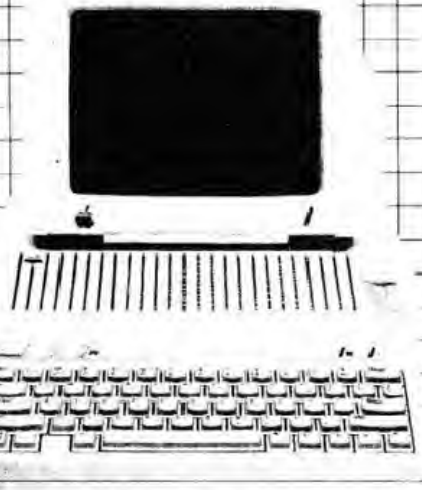
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